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ON THE
THERAPEUTIC APPLICATION
OF
ELECTRO-MAGNETISM.

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ON THE
THERAPEUTIC APPLICATION
OF
ELECTRO-MAGNETISM
IN THE TREATMENT OF
RHEUMATIC AND PARALYTIC AFFECTIONS.

BY
ROBERT FRORIEP,
DOCTOR IN MEDICINE AND SURGERY, PUBLIC PROFESSOR OF GENERAL SURGERY
IN THE UNIVERSITY OF BERLIN,
&c. &c. &c.

Translated from the German

BY
RICHARD MOORE LAWRENCE, M.D.
SURGEON EXTRAORDINARY TO H.R.H. THE DUKE OF SAXE COBURG AND GOTHA.

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P R E F A C E.

HAVING had, through the kindness of Dr. Froriep, an opportunity of witnessing the application of electro-magnetism in the treatment of many of the following cases, I was convinced that it was a valuable remedy in the treatment of rheumatic complaints, and my own subsequent experience has strengthened this belief. The therapeutic value of electro-magnetism has never been fairly tried—it has been resorted to as a universal remedy capable of effecting impossibilities when all other remedies have failed; from this its want of success has arisen, and consequently it has not been duly appreciated. The desire to bring this remedial agent into more general favour, has induced me to undertake the translating of this work.

21 *Connaught Square,*
October 1850.



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ON THE

USE OF ELECTRO-MAGNETISM

IN THE TREATMENT OF

RHEUMATIC AND PARALYTIC AFFECTIONS.

RHEUMATIC affections appear under various forms, as those of pain, loss of sensation, convulsions and spasms, trembling and complete paralysis, swelling, and of atrophy. The different forms that this common complaint assumes will, in some measure, explain why it has not been better understood.

There are some pains and forms of paralysis arising from rheumatism which closely resemble neuralgia and paralysis; and in endeavouring to distinguish them we must consider the rheumatic disposition and the influence of atmospheric changes.

We must, therefore, search for some characteristic sign of the rheumatic nature of the complaint;

a sign which can be perceived, and which holds an invariable relation to the continuance of the complaint.

To find a new and hitherto unobserved symptom in a complaint of such common occurrence seems nearly impossible; yet in other things how frequently it happens that something is pointed out which has escaped previous observation, and that then every one is surprised he should never have noticed it!

This is the case with the effusions which I have observed to be a constant and characteristic sign of rheumatic disease. As far as I am aware they have never been considered of diagnostic value, and still less recognised as a pathognomonic sign of rheumatic affections. Nevertheless they are not only present but easily recognised, and bear such exact proportion to the complaint, that in the ratio that the effusions increase or diminish, the other symptoms grow worse or improve.

RHEUMATIC effusion occurs mostly into the cellular tissue; most frequently into the subcutaneous cellular tissue; also into the structure of the corium; into the cellular tissue, beneath the aponeuroses; into the cellular tissue of the muscles; into the periosteum; and into the serous membranes.

This effusion is most apparent when situated in the subcutaneous cellular tissue, appearing striated and pretty sharply bounded when of little extent, but when diffused causing an elastic swelling of the limbs: this is the product of the rheumatic affection, but may also be described as the mechanical cause of the continued alteration of the nervous energy. I will give an example of acute rheumatism to remove any doubt as to the fact of its being rheumatism.

Let us take, for example, an attack of acute rheumatism of the shoulder: we have pain succeeded by immobility of the shoulder and upper-arm; the pain is lasting and acute; after a short time febrile symptoms set in, when, if we examine the shoulder, we find a tense swelling, with a red and shining surface. At first it is only œdema-

tous, but afterwards hard and extremely tender. The skin is dry and hot. On proper treatment being adopted, the fever diminishes, the pain and tense shining swelling subside, and the complaint generally assumes the chronic form: the patient complains of debility of the upper-arm: is not able to lift it, or to move it either backwards or forwards, or from the side of the body. Sometimes there is also a feeling of coldness and trembling in the fore-arm and hand. Not unfrequently instead of the continued or paroxysmal attacks of pain there is insensibility of the skin of the upper-arm, or fore-arm, or pricking and numbness of the finger ends. We all know how obstinate these affections are, and that even in fortunate cases from six to eight weeks are requisite to remove the impediments of the sensorial and motor functions in the limb.

The impairment of motion has generally been attributed to the rigidity of the ligaments, because rheumatic inflammation was said to be inflammation of the tendinous structures. I have observed, on careful examination, a peculiar callous thickening of the cellular tissue beneath the skin, accompanied by much hardness and a general

swelling of the surface. In all cases I have remarked that these indurations are most intimately connected with the course of the complaint: the secondary appearances, as pain or want of sensibility, immobility, or trembling, improving in corresponding ratio with their diminution.

Having made these observations, I endeavoured to make myself more fully acquainted with effusion as a symptom. I then found that it might be situated in the corium, but is most frequently in the subcutaneous cellular tissue. It occurs also in serous cavities: however, I shall not enter into this at present, but reserve my observations on articular rheumatism for another occasion, confining myself here to effusion into the cellular tissue.

I. *The effusion into the Cutis.* — Induration* of the corium is thus distinguished: the skin, without being much raised, seems much thicker, of a peculiar, almost cartilaginous, stiffness, can only be pinched up in a thick fold, can be moved over the cellular tissue below, though not so freely as healthy skin, especially over bony surfaces.

* “Schwiele” is the term employed by Dr. Froriep.—ED.

A fold of skin pinched up looks tumid, thick, and smooth, and if more compressed has a shining appearance, which, in healthy skin, it is impossible to produce. The colour of these places is mostly lighter, whitish, or fallow, which marks the effusion very distinctly: they can also be recognised by the touch. The effect of stimulants (which produce cutis anserina in healthy skin) is very peculiar on these places; for instance, the application of the electro-magnetic current, which of late I have very frequently used in the treatment of rheumatic affections. If, by applying a powerful current to the cutaneous nerves, cutis anserina appears on the skin of one of the limbs, those parts which are the seat of rheumatic effusion are not affected, but remain quite smooth. This is most striking when, owing to the treatment employed, the effusion has decreased; then the cutis anserina may be seen encroaching on the former smooth surface in stripes or spots, giving a spotted appearance to the skin. These spots gradually disappear, and with them the complaint, except where the effusion is not confined to the cutis, but implicates deeper-seated structures.

These effusions produce various changes in the

sensibility of the skin: for the most part it is blunted to the external touch, which is felt as a pressure, but cannot be so nicely distinguished as by skin in a healthy state, and they generally render it more susceptible of atmospheric changes. The parts where effusion exists are not painful when touched, but their sensibility is sometimes decreased, though oftener increased, by the passage of an electro-magnetic current: they are also subject to peculiar sensations, as a feeling of cold, or of a dry burning heat and itching. Pain is the symptom which most frequently accompanies this effusion into the cutis in all forms of rheumatism, such as sciatica, loss of sensation, and rheumatic paralysis. The secretion of these smooth places is checked, and I have seen the surrounding skin bathed in perspiration whilst they remained quite dry.

II. The second and most frequent form of rheumatic effusion is that which takes place into the subcutaneous cellular tissue—the *induration of the subcutaneous cellular tissue*. This is found either in small circumscribed spots, or spreading over a limb, half the body, or the whole body.

The effusion which is confined to parts supplied by the ramifications of a nerve is remarkable. It can be recognised at once by a slight swelling and by the skin over it having a shining appearance, and not admitting of being pinched up in a fold. Upon examining the swelling, it will be found firm and sometimes hard, and it does not pit on pressure unless that has been employed for some time. When these effusions are circumscribed, their margins may be distinctly felt, and the adjoining cellular tissue is pliable and easily pinched up into a fold. Where they are extensive, the surfaces over which the effusions are spread look swollen and disfigured, the skin is smooth and shining, but seldom changed in colour, and the margins are clearly defined, especially where the cellular tissue lies over a hard surface, as the forehead or front of the leg. When these indurations are diffused over an entire limb as the leg, they cause a tenseness of the skin which renders it firm and unyielding. The surface is shining and full of indentations; and, where the effusions are widely spread, the colour is changed to a bluish red, the skin cannot be pinched up in folds, the surface is cool, and the patient does not always complain of pain. The

effect of the electro-magnetic current on these effusions is very marked: the application of it turns the surrounding skin red, whilst that over the induration remains pale, defining its extent. Cutis anserina is produced, provided the electrical stimulus be sufficiently powerful. These callous spots are generally extremely sensitive of the stimulus of electricity, and the passage of a current will discover their presence by rendering them very tender; but it also happens that where the effusion is considerable the sensibility is lessened, or in places completely destroyed. This occurs principally when the induration is seated in the cellular tissue and corium. This form of effusion generally succeeds an attack of acute rheumatism, affecting different parts of the body, as the shoulder and upper-arm, &c., and is accompanied by chronic rheumatic pains, which continue for years, gradually depriving the patient of the use of his limbs, and not remitting until absorption of the induration has been effected, during which process the power of motion returns, and the pain decreases or increases in exact proportion as the induration improves or grows worse. Isolated rheumatic indurations are found in spasmodic contractions, but

whether or not as the cause of the same I must leave undetermined. More extensive effusions are followed by stiffness, trembling, or by paralysis; by the last especially in those parts where the superficial cellular tissue is not separated from the muscular by aponeuroses. Rheumatic effusion into the cellular tissue of the face is generally accompanied by paralysis of those muscles supplied by the facial nerve. A slighter degree of extension beneath the skin of the face gives rise, though seldom, to a diseased excitability of the muscles, which become subject to spasmodic twitchings, being no longer under the influence of the will.

A peculiar variety of these indurations in the cellular tissue, is a less indurated form, met with in persons wasted away from chronic rheumatism, or where a fractured limb has been kept motionless for some time. We sometimes find at the most pendant part of a limb, for instance, the ulnar side of the fore-arm, or back of the upper-arm, a loose pale swelling, which hangs like a bag. The surrounding cellular tissue is soft and yielding, but that of the swelling is firm, hard, and painless, and does not pit on pressure.

These indurations are the seat and constant at-

tendants of rheumatic pains, which spread from them over a limb, causing severe pain in one of the adjoining joints, undergoing exacerbation on each change of the weather and in high winds. As these indurations become absorbed, which, under any treatment takes place but slowly, the pains also subside. These indurations are very painful on the passage of an electro-magnetic current, which produces no change of colour: they are not painful when pressed, and the skin over them maintains its sensibility unimpaired. Chilblains resemble these indurations in which not only the cellular tissue but also the corium is indurated, and of a bluish-red colour. The treatment of chilblains is well known; but it may not be so well known that similar swellings arise on the backs of the fingers and hands in rheumatism, especially in partial rheumatic paralysis, which can be cured by the stimulus of the electro-magnetic current.

III. The third variety of rheumatic induration is situated in the muscles—*muscular induration*—which, in consequence, feel hard and unyielding. Sometimes when there is less effusion, they are like a muscle when firmly contracted, and in time lose

their size, become atrophied and thickened, and when laid hold of feel like a firm tendinous band. A striking peculiarity in this last variety is, that the muscle in places cannot be moved over, and, on examination, seems adherent to the surface of the bone: the cellular tissue around it is sometimes soft and yielding, in fact quite healthy; sometimes it has become callous, and is easily moved over the muscle, or the callous muscle is covered by a slightly-callous cutis and healthy cellular tissue. The muscular induration is generally insensible; but occasionally there are places which, when pressed, are painful, and feel as if there was a sore beneath the skin. This muscular induration is attended with more or less loss of flexor power, arising not from pain, but from the diminution of the contractility of the muscular fibres. If we endeavour to excite the muscles to contract by the application of an electro-magnetic current, we shall have no reaction where there is much rheumatic effusion, the muscles remaining quite passive even on the passing of a powerful current; forming a striking contrast to paralysis proceeding from an affection of the nervous system. This difference of action of the electro-magnetic current on the

muscles is of great importance in distinguishing paralysis caused by disease of the nervous system from rheumatic paralysis. The functions of the muscles are impaired in degrees varying from mere stiffness to the entire loss of all voluntary motion ; whilst passive motion is possible, though sometimes restrained by the acute pain brought on in the joints and other parts. A feeling of stiffness sometimes attends each voluntary movement of the muscles after they have been at rest, or an awkwardness in their use is felt, rendering the patient's whole attention necessary when any act is to be performed, or a slight trembling follows each movement, which may gradually increase to complete paralysis agitans ; and, added to this, there is a disagreeable sensation of weight or feeling of tension and stiffness of the affected limb, and not unfrequently lancinating pains, which, with the trembling, are increased by change of weather. This trembling is very often accompanied by a slight restriction of the full use of the part, and may, I think, be considered to arise from partial paralysis, or from suspension of the equilibrium between the antagonistic muscles, or from the continued half-involuntary effort to restore

this equilibrium, and, therefore, during sleep and whilst the trembling limb is supported it ceases. In bad cases, when all the muscles are implicated in rheumatic effusion, this trembling results in complete paralysis, contraction or rigidity of the affected limb. In these cases all voluntary power is lost; the limb does not dangle loosely by the side, but hangs down stiff and motionless, and its position may be more or less easily changed. When certain muscles only are the seat of the effusion, we find it confined to those which are supplied by one branch of a nerve; and, in such cases, it is not always accompanied by stiffness of the part, and some muscles only are paralysed, whilst various distortions are caused by the antagonistic muscles. Paralysis of single muscles has, I believe, never been recognised as arising from rheumatism; but the fact that such is the case, deserves further investigation on account of its importance in a diagnostic and therapeutic point of view. The characteristics of effusion in the muscles are indurations of the cellular tissue and cutis, giving rise to a pale, cold, and hard swelling, over which the skin is stretched and shining, and sometimes traversed by distended cutaneous veins, ramifying in

different directions. In the flexures of the joints, and on the back of the hand and foot, the swellings are thicker, more œdematous, of a bluish-red colour, and pit on pressure. When the effusion is confined to a group of muscles, there is generally over this group a distinct circumscribed induration of the cellular tissue, which, according to my observation, is so constant a symptom as to be a diagnostic sign of the cause of the paralysis; though, at the same time, I must mention that I have seen paralysis arising from disease of the nervous system followed by effusion. It may be known when the complaint is of a rheumatic nature by the accompanying lancinating pains and the marked influence of atmospheric changes; yet these symptoms are not unfailing, rheumatic paralysis being sometimes unattended by pain. Another important symptom is the decreased sensibility of the cutis over the effusion, there being not only a feeling of coldness, but an actual decrease of temperature, influenced by the weather, the surrounding parts appearing of a red or reddish-blue colour. The limb feels warmer and looks redder on the passage of an electro-magnetic current; and from its continued application, the superficial and deep effusion be-

come gradually absorbed, the use of the muscle by degrees returns, and may be entirely restored, the improvement exactly keeping pace with the progress of the absorption.

Treatment. — Electro-magnetic currents, shampooing, warm baths, iodine, alkaline lotions, and promotion of local perspirations. The absorption in any case proceeds but slowly. Generally these cases of paralysis appear to arise from disease of the nervous system, particularly of the spinal cord: they are not benefited by stimulants, and we must try to cause absorption of the effusion, thus giving freedom to the muscles when the vis nervosa will again cause them to contract.

IV. And, lastly, I have seen effusion into the periosteum—*periosteal induration*—which is very seldom found existing alone, there being generally at the same time effusion into the subcutaneous cellular tissue and cutis. If such complications are not present or have been removed, small oval swellings may be felt on the subcutaneous surface of thinly-covered bones. These swellings may be called rheumatic nodes. The accompanying symptoms, as far as they can be recognised by sight and touch,

depend on the effusion into the structures above. There is only one symptom which may be referred to the effusion into the periosteum, viz., pain, which is always very severe and lacinating through the limb, beginning at the nodes, where it is most acute: pressure upon these spots is not generally painful, but the application of the electro-magnetic current is so sensibly felt that it may be used for pointing out their situation. This increased sensibility (an intolerable sensation of heat) is exactly confined to the extent of the effusion. Another but not a constant symptom met with in these rheumatic nodes is a feeling as if the limb were at one particular spot broken or paralysed across. Those cases which are attended with effusion into the periosteum are among the most violent and obstinate of rheumatic complaints, often assuming the form of neuralgia, or of some deep-seated disease of the bone, and requiring very energetic and persevering treatment to produce absorption. I have never seen exostosis resulting from rheumatic nodes.

It is a question whether other organs are not also the seat of rheumatic effusion—the sheaths of nerves, for instance. I will not deny the possibility,

though I must confess that I never saw a case ; nor, as far as I am aware, have those who have written about effusions into the sheaths of nerves ever recited a case, where they have been found on dissection ; and, for my own part, I am inclined, from a twofold reason, to doubt whether they occur at all. First, because the symptoms which have been attributed to effusion into the neurilema may be more satisfactorily referred to the easily-recognised induration of the cellular tissue and muscular structure ; and, secondly, because in two cases of gout, in which the symptoms of pain and paralysis seemed to indicate that effusion had taken place into the neurilema, I made a minute examination of the nerves after death, and traced them up to the spinal cord, without finding either any effusion or tumefaction. I do not think it, therefore, too much to demand that, as the occurrence of effusion into the sheaths of nerves in rheumatism cannot be externally felt, the anatomical proof of its existence should be demonstrated before we are required to give it our assent. Whether rheumatic effusion occurs into the medullary canal is not known.

Effusions into serous cavities take place ; but as they produce different results to the rheumatic

induration, this is not the place to consider them.

The next question is, Are these rheumatic effusions the result of inflammation, or of perspiration having been checked? The first symptoms only lead us to the conclusion that inflammation is the cause; but from the subsequent course of the complaint we should draw a different inference. The theory that the checking of the excretions of the skin is the immediate cause of the deposit of fluids beneath the skin is evidently too mechanical, and proceeds from wrong views of the process of secretion; but there is a function both in inflammation and secretion which deserves consideration, —I mean the nervous energy.

Every appearance of change in the body, whether physiological or pathological, commences with an effusion which at first is necessarily fluid, and is carried along by the blood from which it is secreted. This formative fluid exudes through the coats of the vessels. This is the first mechanical process in nutrition, also in congestion, inflammatory effusion, and in every case where fluids pass from the circulation into the surrounding structures. This

exudation of a portion of the blood through the coats of the vessels is common to all exhalations. The question arises, What causes the fluid to escape from its natural channels? It may happen either from some alteration in its consistence or composition, from congestion, from debility, or from some change in the texture of the sides of the vessels. It is well known that these are porous, that the external and middle coats are composed of fibres, and the inner one of a thin serous membrane. The fluid of course escapes more easily when the porosity is increased, and a membrane composed of fibres must naturally be more porous when distended, the spaces between the fibres becoming larger. Therefore, in every case where the blood is not altered, effusion is preceded by a distension of the vessels, which may be caused either by congestion, debility, or relaxation of the coats of the vessels. Henle directed his attention to this subject, as appears in his works on *Pathological Investigations and General Anatomy*, and says, in the last work (page 522), "Increased contraction of the capillaries causes paleness, and restricts the escape of the plasma; atony and paralysis of them produce redness and an increased collection of the plasma;"

and comes to the conclusion that paralysis of the capillaries is the principal cause of congestion, inflammation, and effusion. It cannot be denied that the vessels contract, since Schwann saw them contract beneath the microscope on the application of cold; and Valentin has also observed the same result from irritation of the nerves supplying them. The contraction of the capillaries is induced by effects of temperature, mechanical, chemical, and electrical stimulants. This is proved by the experiments which have been made with solutions of salt, sal volatile, cantharides, and alcohol on the veins and capillaries: contraction of the veins has been produced by pinching them with forceps; and I have often seen distended vessels* contract on the application of an electrical current, the part sti-

* Dr. Golding Bird remarks in his lectures,—“We have seen that electricity, under all its modifications, is a most energetic agent in exciting contractions of muscular fibre. This susceptibility to the stimulus of electricity is not limited to real muscular tissue, but is equally participated in by those white contractile tissues, which, by some physiologists, are hardly regarded as belonging to the class of true muscles. I allude particularly to the muscular coats of arteries, intestines, and bronchial tubes, as well as the structure of the uterus.”

Dr. J. C. B. Williams has actually demonstrated the contractibility of a bronchus under the influence of a current of voltaic electricity.—Ed.

mulated becoming pale. I have frequently produced in the cutis and contractile tissues, by the stimulus of electricity, cutis anserina, which results from the same psychological impressions that give rise to increased contraction in the muscles. If by this it appears that the vessels are affected by the same excitants as the muscles, a great difficulty opposed to this theory will be removed, and it will also derive an important support if *juvantia et nocentia* prove the same. The next question is, do effusions arise from relaxing and disappear from contracting causes? This is known to be the case in inflammation—for example, a contusion is followed by a reddish-coloured swelling and inflammation, which subsides on the application of cold or evaporating lotions. We have the same again after frost-bites: the first visible effect of cold is, that the part becomes of a dull red colour, in consequence of a diminution of the quantity of blood conveyed by the arteries, and a stagnation of it in the veins: if the cold continue, the blood is gradually expelled by contraction of the tissues, and the part becomes livid and pale. Sudden alternations of temperature cause redness of the skin, and swelling, owing to the distension or re-

laxation of the vessels, and stimulants are required in order to excite them to contract.

As dilatation of the vessels is caused by relaxation and removed by stimulation, so also in rheumatic effusion. The proximate cause is some influence which weakens or paralyses the nervous energy in some part; which results follow the continued abstraction of heat. But if the products of rheumatism are formed, they can only be removed by such means as stimulate the nerves of the parts affected, so that contraction of the vessels supplied by these nerves ensues as a secondary consequence. These remedies act directly and indirectly. Those which act directly are mechanical stimulants, as shampooing, rubbing, passive and active motion, and electricity; those which have an indirect influence are stimulating applications, the effect of which is explained by the reflex function, though we must admit that some advantage is derived from the local application.

The analogy of the mechanico-physiological process in other effusions, and also the result *ex juvantibus et nocentibus*, prove that the rheumatic induration proceeds from a diminution of the *vis nervosa*.

If we come to the conclusion, that rheumatic effusion is the effect of the disturbance of the nervous system, and consider rheumatism as peripheric disease of the nerves, it is not difficult to explain, why in rheumatic affections symptoms of apparent disease of the nerves, as paralysis or pain, should be superadded to such an extent as scarcely to bear any proportion to the exciting cause; whilst the rheumatic affection is only considered as the result of altered secretion and impeded perspiration, and not as the product of the change which has taken place in the irritability of the nerves. This view will also explain why rheumatic disease continues until the exudation is absorbed; for the effusion either obstructs mechanically the influence of the *vis nervosa* on the muscles or the brain, or shows the degree of the relaxation of the vessels and the diminished irritability of the nerves upon which the vessels are dependent. This theory of rheumatism accords more than any other with all the facts which have been recognised in respect to its etiology, the peculiarity of its course, its complications, and prognosis.

And, with regard to the treatment, our object

must be to invigorate the nervous system both locally and generally, to restore it to a healthy state of excitability, and to remove the effusions. This is to be effected, first, by removing debilitating influences; secondly, by the application of such remedies as we know to act as stimulants in the normal condition of the nerves and vessels; and, thirdly, by producing absorption of the effusions. In reference to the second indication, this caution must be given—not to allow the proper stimulants to be applied too long, because overstimulation is followed by depression.

The first indication will be accomplished by warm clothing, occupying warm rooms, avoiding exposure to cold, and by cleanliness.

The second by general, and especially local, stimulants, as heat, vapour-baths, hot douches, stimulating and evaporating lotions, rubifacients, rubbing, shampooing, acupuncture, and electro-magnetism.

The third by the remedies named under the

second indication, and especially by continued diaphoresis, produced by dry heat applied over the effusions, and the local inunction of iodine.

Symptomatic affections and complications must be treated on general principles.

IN support of the opinions I have expressed concerning the importance of rheumatic effusion, I shall communicate a number of cases which I have had under my immediate treatment. I have been in the habit of using the electro-magnetic machine of Saxton,* and have very seldom em-

* The first magneto-electric machine was invented by M. Hipolyte Pixii, of Paris, and was first made public at the meeting of the Académie des Sciences in September 1830, a description of which will be found in the "*Annales Chimie*" for July 1832, and a representation of it in Becquerel's "*Traité de l'Electricité*," vol. iii.

At the meeting of the British Association at Cambridge, in June, 1833, Mr. Saxton exhibited his improvement on Pixii's machine, a description and engraving of which will be found in the ninth volume of the "*London and Edinburgh Philosophical Magazine*," page 360; but now that we possess more convenient and simpler apparatus for the medical application of electro-magnetism, we should avail ourselves of the knowledge furnished by the electrophysiological researches of Matteuci and many others, and give it a fairer trial than it has hitherto had. Dr. Golding Bird, in his Lectures on Electricity and Galvanism, delivered at the Royal College of Physicians, observes, "I am conscientiously convinced that the agent in question is a no less energetic than valuable remedy in the treatment of disease. I feel most anxious to press its employment upon the practical physician, and to urge him to have recourse to it as a rational but fallible remedy, and not to regard it as one capable of effecting impossibilities;" and Mr. Noad, in his Lectures on Electricity, remarks, "These results are surely of sufficient im-

ployed other remedies at the same time with electro-magnetism, wishing to ascertain without the possibility of a doubt its real effect. Currents may be transmitted through the medium of sponges saturated with salt and water, and applied to the cutis, or by acupuncture, when it is requisite to act energetically on parts deeply seated, by introducing two needles of platinum in the course of a nerve. I must however observe, that there are many remedies which when judiciously employed very materially assist the cure; but as I was desirous to test the therapeutic value of electro-magnetism alone in the treatment of disease, I seldom employed them; and the following cases will therefore be of more interest to those interested in therapeutical experiments.

I shall relate some cases of acute and chronic rheumatism which seem calculated to exemplify the importance of rheumatic induration, and its relation to the disturbances of the sensorial and motor functions, which are met with as symptoms

portance to induce physicians to make a serious study of electrophysiological phenomena, in order that by persevering efforts science may be advanced, and a therapeutic method discovered applicable to the cure of a disease which unfortunately has hitherto resisted every other form of treatment."—*Ed.*

in rheumatic affections. If cases I.—XIV. substantiate my opinions, an additional number will not only exhibit the great variety of rheumatic affections, but also more convincingly establish the diagnostic value of the rheumatic induration.

I.—ACUTE RHEUMATISM OF THE SHOULDER AND
UPPER-ARM.

Miss F., aged 38, slightly made, and of a nervous temperament, had been subject for several years to attacks of rheumatism, which generally commenced with fever, lasting from two to three weeks, and terminating in a chronic rheumatic affection. She had one of these attacks on the 10th April, 1842, and was attended by Professor Caspar. During the night of the 19th April, I was sent for in consequence of a great increase of the febrile symptoms and violence of the pain, the patient labouring under much nervous excitement, and declaring that she had been poisoned. The fever diminished after a couple of days, but the pains continued with unabated violence.

April 22nd. She called upon me: I found the right shoulder and upper-arm very red; on the posterior surface of the shoulder, passing over the del-

toid to the outer-side of the upper-arm there was a large induration in the cellular tissue, which was very perceptible, from the skin over it being of a shining bluish-red colour, whilst the surrounding skin of the shoulder and upper-arm was vividly red. The swelling was firm, painful when pressed; the skin could not be pinched up, and was the seat of severe lancinating pains, which extended from the shoulder down the arm to the hand; motion was so imperfect, from the pain and loss of power in the arm, that the patient was obliged to carry it in a sling, and not only support but also lift and move it about with the left hand, when the slightest movement was requisite. The pulse and general habit were irritable, but only to such an extent as could be fully accounted for by the violence of the pain, and entire want of sleep. In front of the shoulder there was a sore from the application of a blister. The pain, although most violent during the night, was also in the day-time so severe as to cause the patient to walk about moaning in spite of her exhaustion. I allowed the wound caused by the blister to heal up, and passed a weak electro-magnetic current from the shoulder to the hand, which produced acute pain in the in-

duration; but after it had been applied for one minute, there was so sensible a diminution of pain, that she suppressed every expression of suffering, lest I should be deterred from continuing its application. The colour of the induration on the upper-arm during the application was pale, with spots of dark-red; after an application of four minutes all sensation of pain was removed. In the afternoon the patient had an attack of pain, less acute, and accompanied by less nervous excitement, which again passed off so as to allow her to have a quiet night's rest, another paroxysm not occurring until morning, and then only lasting half an hour.

23rd. The pain became greater and more continuous after rising at ten o'clock, but was removed by passing a current for seven minutes. After the application, the pulse was more frequent, though it did not exceed 80. The induration appeared white, spotted with red, and patient could, without assistance, raise the hand to the forehead, but, owing to the pain in the induration, which extended to the inner condyle, she could not move it backwards. With the exception of an attack of pain lasting for one hour, the patient felt so well during

the afternoon that she could walk about the room without having her arm in a sling, and afterwards passed a tranquil night, being only disturbed a few times from violent perspirations.

24th. Suffered from much depression, in consequence of erratic lancinating pains, which were quickly removed by the electro-magnetic current. The induration was a little softer, and the movements of the limb freer.

25th, 27th, 28th. Electro-magnetic currents were applied; the motion of the arms gradually increased; the nights were free from pain; her appearance and general health greatly improved; the induration softer and scarcely changed in colour on the passage of the electro-magnetic current.

29th. The arm was covered with an urticarian eruption, accompanied by slight symptoms of fever: the current had no effect upon it.

May 1st. The eruption had disappeared. The patient was able to use her arm freely and without pain; her nights were perfectly quiet, and no trace of the induration could be seen; in fact the complaint was completely removed. In this case, by a local application of the electro-magnetic current

for eight days, producing absorption of the induration in the cellular tissue, an affection was removed which, under the usual treatment, would have required from six to eight weeks.

Acute rheumatism often assumes a chronic form, shifts from place to place, and is prone to recur from subacute inflammatory attacks. Rheumatic indurations accompany this form also, which can only be removed by absorption of the local effusion.

II.—SUB-ACUTE ARTICULAR RHEUMATISM.

E. V., aged 19, a smith, whose previous health had been excellent, a stout muscular lad, caught in the month of April, 1841, a severe cold, from running during the night into the street without shoes or stockings upon an alarm of fire, and suffered from severe rheumatic pain and swelling of both ankles; the pain shifted to other joints, and was accompanied by a bluish-red swelling

June 1st. He was admitted into the Charité Hospital, and there had vapour baths. In fourteen days the pain was removed from the joints, but the ankles remained in the same state as at first, and at the end of a month, finding no relief from the treatment adopted, he left the Charité,

and on the 21st July came to me. He walked and also stood with much difficulty from acute pain; the toes were rigid, and about the internal malleolus there was an elastic, bluish-red swelling, which felt firm and slightly warmer than the surrounding skin; the skin could neither be raised up in a fold or moved over the bone. I passed an electro-magnetic current through this swelling, which turned at first pale and then red; the pain was entirely removed after an application of from five to six minutes to each foot. The patient left my house free from pain, which did not return for three hours, and was then less acute.

22nd. The swelling at the inner malleolus was considerably softer, cool, and but slightly redder than the surrounding skin. The pain was removed by the application of a current, and the patient remained, although he took a long walk, free from pain, until eight in the evening.

23rd. He walked with a tolerably firm step, and only felt inconvenience on stretching the foot. The swelling about the inner malleolus was nearly gone, the skin could be pinched up in a fold, and after the application of a current, there was no pain in the foot, and he could move it freely.

24th. There was hardly any uneasiness felt in the joint on walking. The swelling on the right foot was quite gone, that on the left felt soft and œdematous, and was of a healthy colour. Every trace of pain was effectually removed by the application of a powerful current. A slight pain, which was first felt but half an hour before at the inner side of the right knee, was quickly removed, and he was able to walk as well as usual.

25th. There was neither pain nor any other symptom to complain of: a weak current was passed through the ankles.

26th. The patient came at the usual hour and was very dejected, in consequence of his right knee being inflamed. He had acute pain on treading on his left foot; there was a bluish-red, firm, hot swelling over the patella, not pitting on pressure; the skin could not be pinched up in a fold; the pain was augmented by gentle, but relieved by firm pressure. The left ankle was œdematous and painful, the right not at all. The electro-magnetic current took away the pain in the left ankle entirely, but that in the knee only remained away for half an hour.

27th. The pain in the right knee was exceed-

ingly acute, the swelling in front of the knee very hard, and the skin above slightly reddened; the skin over the right outer malleolus was reddened and painful, but the joints of both ankles could be freely moved, a continued gentle current, which was applied three times in the course of an hour, removed not only the pain, but also the swelling of the ankles and of the right knee to such an extent, that nothing remained but a small, doughy, pale œdema of the skin over the patella. He left me free from pain, and was able to follow his work for the rest of the day. The following day he sent to say that he felt quite well, and was not able to leave his work. I saw him on the 15th of August, the last week of September, and on the 1st of November, up to which time he continued well.

In this case nothing was employed but electro-magnetism, and it is very interesting to see symptoms which are analogous to those of rheumatism, subside quickly and completely from the effect of the electrical stimulus.

III.—INTERMITTING ARTICULAR RHEUMATISM.

Major U., a tall, fine, healthy-looking man, aged fifty, always enjoyed good health, caught in the

summer of 1841 several severe colds, and, for the first time, had an attack of articular rheumatism of the right knee, which was treated in the usual manner, and cured in a couple of months. In the autumn he caught a fresh cold, which gave rise to a very singular intermitting rheumatic affection. He had a rheumatic swelling of both knees, which suffered exacerbation every eight and a half days. On the first day he felt a painful stiffness in the right knee, which was slightly swollen; on the second day this decreased, and during the night a troublesome itching of the left knee set in, which prevented him from sleeping. For twelve hours the left knee continued enlarging, until a doughy swelling, as large as a fist, formed beneath the lower portion of the vastus internus, and gradually implicated the whole of the knee, which, after motion, became exceedingly painful. On the fourth day the swelling had reached its height, and then began to decrease, and by the fifth day had nearly subsided. The lower portion of the vastus internus and the skin over the head of the fibula remained puffy, and there was a very unpleasant sensation of intense cold, which extended down the outer side of the calf to the heel. The right upper-arm, both

elbows, and the fingers of both hands, especially those of the left, were then slightly affected. After the eighth day, there was a slight itching of the right knee, the affection of the elbows, and a painful stiffness of the loins, which was sometimes present, passed off, when the above-described symptoms recommenced. Patient had tried for four months different anti-rheumatic and anti-neuralgic remedies. Derivatives, leeches, stimulating and anodyne embrocations, diaphoretics, vapour baths, and douches, produced not even temporary benefit. His general health suffered but little.

March 14th, 1842. When the patient consulted me, the swelling of the left knee had reached its height. It felt doughy and yet elastic; was as large as half the hand, raised about an inch, of a vivid scarlet hue, not fluctuating, and only painful when pressed. There was no effusion into the cavity of the joint; the knee could neither be straightened nor bent, from a painful feeling of tension of the extensor muscles of the leg. I recommended electro-magnetism, and the discontinuance of every other remedy. The passing of a weak current for a quarter of an hour through the above-mentioned parts, caused more freedom of

motion, a great decrease of pain, and diminution of the swelling of the left knee.

15*th*. There was much general excitement; but on the whole the patient was better.

20*th*. The exacerbation began as before; but was in every respect much less. The same treatment continued.

28*th*. The exacerbation recurred.

April 5th. The exacerbation again recurred; but the right foot was only slightly affected.

8*th*. The swelling of the left knee was considerable, and there was but little redness. The sensation of cold was no longer felt in the right heel, nor the doughy swelling over the head of the fibula.

12*th*. A very slight swelling of the right knee marked the beginning of another exacerbation. Patient was obliged to leave Berlin.

27*th*. The treatment was resumed; no change had taken place in the complaint since he left. The exacerbations recurred at the usual period. The stiffness in the knees and elbows caused but little inconvenience. Over the left knee a small doughy swelling had become stationary, the skin over which could not be pinched up.

May 2nd. There was only a stiffness felt in the joints of the right arm.

13th. Continued the same. The left knee was free from swelling and pain, and during the last week at the time of the exacerbation, no change was perceived.

15th. Patient went into the country, and from thence to Marienbad, in Bohemia. I heard two months afterwards, that he continued free from this intermitting affection.

If in this case the inflammatory character was less marked, the existence of effusion into the cellular tissue, which is here our chief object, cannot be doubted, as the same places were compared before and during the exacerbations.

IV.—RHEUMATIC* GUM-BOIL.

I was formerly very subject to gum-boils: the swelling seldom affected the face, but was confined to the outer side of the gum, and terminated in an abscess.

May 2nd, 1841. I had a painful swelling of the gum of the right upper-jaw, induced through taking

* I have employed throughout this translation the terms which are used by the Author.—Ed.

cold. It could be distinctly seen below the right eye, and there was severe pain in the course of the infra and supra orbital nerve. I passed a moderate current for a minute from the upper lip to the ear, the sympathetic pain immediately subsided, leaving only a painful spot over the root of a decayed tooth. After an application of 10 minutes, there was much less tension of the swelling. I again applied a current, which effectually removed every trace of pain and softened the swelling, which during the evening was perfectly absorbed.

I have observed in rheumatic toothache, even when there is no swelling present, the effect of the electro-magnetic current to be so safe and quick, that we have a remedy which solves the problem, is there a cure for the toothache? The pain may be removed whether there is a swelling or not, even when it is caused by the irritation of a decayed tooth; in the last case of course only temporarily, as the local cause of the inflammation remains, generally terminating in the formation of a small abscess, which electricity cannot prevent, though it can remove the violent sympathetic pain, and by confining it to the tooth affords the sufferer great relief. Dr. L. was suffering from toothache

and a gum-boil, caused by a carious tooth, occasioning severe throbbing pain extending to the temple and shoulder; one application of an electro-magnetic current considerably reduced the pain, and by the evening the swelling was quite soft, the sympathetic and local pain were gone, and in the course of the night the abscess burst.

Another case of inflammatory toothache, resulting in the formation of a gumboil, came under my observation. A lady, the mother of several children, came to me one morning complaining that for the last 24 hours she had been suffering excruciating agony in the face, not arising from a decayed tooth. The application of a gentle current for two minutes freed her from pain, but she then remarked that the pressure of the tongue against the side of a molar tooth was painful. I advised her to take a warm bath, and to go to bed in order to recover from the exhaustion caused by the intense pain she had endured, and on the return of pain to have another application of the current. She slept after the bath for several hours; and in the course of the afternoon, on a return of pain, a current was applied which removed it. I now felt a small circumscribed swelling over the

third molar of the upper jaw. I prescribed a saline draught, and during the night the abscess burst, terminating the attack. I could recite a great many such cases, but shall confine myself to those rheumatic affections which are accompanied by effusion; and, in conclusion, make this observation, that for the last year and a half I have, in my own case, always succeeded in preventing the formation of a swelling by applying a gentle current for one or two minutes, and in that of many others I have employed the same remedy with equal success.

V.—ACUTE ARTICULAR RHEUMATISM.

W. V., in consequence of a severe cold, was attacked with articular rheumatism in the month of February. During the first fortnight, the febrile symptoms gave rise to serious apprehension. Diaphoretic treatment was followed for five weeks, after which only the wrist and finger-joints of the right hand remained swollen and painful. The cellular tissue on the dorsum of the fore-arm, wrist, and finger-joints was puffy and firmer than in common œdema, the skin often appeared reddened, and could not be moved over the parts

beneath. These spots became very painful when exposed to the impression of cold air, often preventing him from sleeping; but the pain decreased after any violent exercise which produced free diaphoresis. The patient also had sometimes pain and stiffness in the loins. I passed a gentle electro-magnetic current through the affected parts every other day for a month. The pain in the loins disappeared in a few days, that in the wrist continued a short time longer, and for the last fourteen days a current was applied only to the ulnar side of the right wrist, and to the metacarpal joints of the thumb, after which the hand could be moved freely and without pain for the rest of the day. From March 10th to 18th the inconvenience felt was very trifling, and not attended with swelling and redness of the skin.

March 18th. Patient left Berlin, and in the beginning of June he wrote me to say that he had lost the articular pains, and was free from every inconvenience.

VI.—RHEUMATIC PAIN OF THE FOREHEAD, AND
HYPERÆSTHESIA OF THE EYES.

W. D., aged 26, a healthy-looking young man, who had often in his childhood suffered from

angina tonsillaris,* was attacked in April 1841 with pain in his neck and limbs. In June, these pains became fixed in his right side and forehead, where he felt a slight degree of pain and a very disagreeable sensation as if he had lost the power of motion. The pain in the forehead was greatly increased by the impression of cold winds or the application of cold water. The skin was red, and the swelling of the subcutaneous cellular tissue so clearly defined as to give to the forehead a spotted appearance. The conjunctiva of the eyelids was red and dry; there was extreme intolerance of light, and so much irritability that patient for months was not able to use his eye for more than five minutes together without bringing on acute pain; the lids were spasmodically closed, and a burning itching feeling set in. In June and July of the previous year, the intolerance of light was so great that he was obliged to remain in a dark-

* Dr. Golding Bird in his lectures says,—“ You may often succeed in effecting a rapid resolution of acute inflammation of the tonsils, providing it be not too intense. In resolving inflammatory action, and in absorbing an effusion, I presume it is fair to explain the rationale of the influences of electricity, less by any imaginary occult and peculiar power, than by a simple counter-irritant action, like that of a blister, over which it has the great advantage of being often repeated, without losing its influence on the part.”—ED.

ened room. After taking Ol. Jecoris Aselli for two months, he was able to use his eyes for several hours together in reading and writing; but this remedy was discontinued at the end of the third month in consequence of the extreme sickness and loss of appetite which it caused.

February 18th, 1842. He applied to me, complaining of violent lancinating and dragging pain in the forehead, eyelids, and dorsum of the nose, together with intolerance of light; not being able to open his eyes wide, nor use them for more than a quarter of an hour together. The rheumatic pains in the forehead occurred when exposed to the impression of cold, or on cold winds blowing in his face; he perspired very freely on the least exertion, and had a peculiar sensation in the right hip, sometimes amounting to pain, but being more frequently the feeling of having lost all use in it. There were three red circumscribed spots on the forehead, each as large as a half-crown; they were raised about half a line over the surrounding skin, could not be moved about over the surface of the bone, nor pinched up. The periosteum was not implicated. After applying an electro-magnetic current for a few days, the sensibility of the eyes

was removed. The swellings on the forehead were absorbed in 10 days, but were liable to return with lancinating pain on the action of a current of cold air; after a month, by the application of a weak current, this tendency, however, was quite removed. Patient could now open his eyes wide, which he had not been able to do for 12 months. The pain in the dorsum of the nose still continued, and through taking cold became very acute. Warm baths and electro-magnetism were employed until the end of April, when the stiffness of the hip, and the pain in the nose were entirely removed.

VII.—CHRONIC RHEUMATISM AND STIFFNESS OF THE SHOULDER.

Mrs. H., aged 45, a healthy-looking woman, suffered in 1840 from occasional lancinating pains, in consequence of some severe colds she had caught. In the month of January she had an attack of acute rheumatism of the left shoulder, which remained stiff, and subject to severe lancinating pains in the night.

May 20th, 1841. Dr. Brown, her medical attendant, brought her to consult me. She was robust, but looked worn. She could neither move

her elbow sideways nor backwards and forwards, nor lift her hand to the forehead; the slightest movement of the arm brought on violent pain in the shoulder; passive motion and pressure, change of weather, high winds, and the impression of cold also produced pain. A weak current was applied to the shoulder nearly every day: this produced a freer movement of the joint, and insensibility to the influence of the weather.

June 21st. After eighteen applications, the arm could be moved more freely, the hand raised to the top of the head, and backwards as high as the waist. On passing a current through the shoulder, which caused a great deal of pain, there appeared three indurations under the skin, each an inch and a half broad, which did not turn red upon the application, like the other parts. The shoulder was painful when moved; the patient could not hold needle-work in her left hand firmly enough to be able to sew, as the effort caused much suffering.

21st and 22nd. Very powerful currents were applied to these indurations, after which the pain subsided, and they became softer.

23rd. Application omitted.

24th. She had no pain in the shoulder, but a

great deal between the scapulæ, which was removed by the passage of a current. The induration at the posterior border of the deltoid alone remained.

25th. Pain in the back quite gone ; the arm had nearly acquired its natural freedom ; she could not raise it so high behind as the other, and was able to follow her occupations without bringing on pain.

26th. There was slight pain in the posterior border of the deltoid, where scarcely a trace of the induration could be found ; the skin over the shoulder and upper-arm was equally reddened by the passage of a current. She could pass her hand over her head to the back of the neck, and raise it behind as high as the shoulder-blade.

27th and 28th. There was no complaint of pain. The passage of the current was less painful. All she complained of was a slight feeling of tightness, which on the 29th was also removed : her arm felt strong, perfect freedom of motion was restored, and she could sew and knit for hours together. At the end of November, Dr. Braun told me she was quite well, and had remained so ever since.

VIII.—RHEUMATIC PARALYSIS OF THE LEFT ARM.

M. S., a servant girl, aged 28, of dark complexion, had enjoyed very good health : six years before she had an attack of rheumatism in the right side of the neck, with distortion of the face ; and two years before, a very severe pain in the left leg, which lasted for months. She menstruated regularly, and was otherwise quite well. For the last five months she had had violent rheumatic pains in the left shoulder and arm, followed by anæsthesia of the cutaneous surface and loss of motion. The pain was most acute in the hand, and particularly in the middle finger, which was bluish-red, swollen and sometimes puffy. The warmth of the bed increased the pain very much.

April 14th. A gentle current was applied for ten minutes to the shoulder, fore-arm, and hand.

15th. She had more strength and motion in the hand.

16th. During the night she had a violent attack of pain in the shoulder. The electro-magnetic current removed the pain completely, but she felt very exhausted.

17th. Not much pain, except at night ; she could use her arm better and raise it to her head ;

the skin was of the natural colour and temperature. A current was passed through the arm.

20th. The pain had ceased at night; she had more power in her arm. The current was repeated.

21st. Complained of want of power in the arm, unaccompanied by pain. A powerful current was applied.

22nd. No pain, but still a feeling of weakness in the arm. The colour, temperature, and size of the hand natural. A current was applied, and she was advised to be constantly exercising her arm and hand.

23rd. There was slight pain, but the arm felt stronger.

24th. A little pain during the night; was able to do her work.

30th. Had continued improving, and was then quite well.

I saw her in July, 1842, when she was perfectly well, having had no relapse.

IX.—RHEUMATISM OF THE SHOULDER AND UPPER-ARM.

A nurse, aged 54, a large, robust woman, complained in March, 1841, of violent pain in the left

side, which gradually moved upwards, remained for a time stationary over the fifth rib, and then attacked the shoulder and upper-arm; she passed sleepless nights, and had not the free use of her arm, being unable to move it from the body or backwards. She had observed that the posterior surface of the shoulder was sometimes red, generally in the morning. Pressure on the shoulder was not painful, it felt firm; the posterior surface was shining, and did not pit on pressure.

April 7th, 1841. A current was passed for five minutes from the nape of the neck to the insertion of the deltoid. The pain, which nothing had before mitigated, ceased immediately.

8th. The lancinating pain returned in the upper-arm; the induration was no longer hard and shining. A current was passed for five minutes through the upper and fore arm, after which the pain ceased, and did not return.

X.—RHEUMATIC PARALYSIS OF THE LEFT ARM.

Mrs. —, aged 37, a tall, pale, thin woman, whose countenance bore the expression of great suffering. In January, 1841, she had an attack of acute rheumatism, affecting both arms. The

right arm was cured, but in the left the pain continued. She was treated at home for some time, then was six weeks in the Charité Hospital, where for four weeks sulphur baths were employed. Nothing afforded her any benefit: the left shoulder, upper-arm, outer side of the fore-arm, and back of the hand were the seat of excruciating pain; she could not raise her hand as high as the neck: abducting the upper-arm brought on a paroxysm of pain; the hand could not be drawn backwards, and was so weak as to be quite useless. At night the pain became so violent that she was obliged to get up and walk about. The shoulder and outer side of the arm looked like wax, were cold and firm, though the soft parts in other places felt flabby. Isolated spots on the upper-arm looked puffy and smooth; the back of the hand was thin and of a bluish colour.

June 18th, 1841. She came to me. I passed a very powerful electro-magnetic current from the shoulder to the hand, for ten minutes, which removed the pain, even that felt on passive motion; the weakness continued as before. After the passage of the current, the skin had a strange appearance; the puffy spots before mentioned remained

pale, while the surrounding skin was very red: the effect of the current on these spots was particularly painful. The arm felt hot, and in some places burning, for the rest of the afternoon.

19th. She had a quiet night, and could reach the back of her head and the right shoulder. No return of pain, although she had been using her arm.

21st. She can move her arm somewhat more freely, and had been able to use it in knitting.

23rd. Could reach the back of her head so easily that she was able to arrange her hair. The upper arm was still puffy, and on passing the hand over it several indurated places were felt. The hand was not so thin, nor any longer of a bluish colour. After the passing of a current the arm was spotted white and red, and for the rest of the day continued to glow.

24th. A very powerful current was passed through the arm, after which she was able to extend it to her forehead.

26th. Again a powerful current was applied, and followed with so much benefit that she was able to reach her right ear.

28th. With the exception of not being able to

raise the upper arm so high as to touch her ear with its outer side, she had the free use of her arm.

29th. She was quite free from pain, the upper arm did not become spotted on the passage of the current, no indurations could be felt beneath the skin; on raising the arm there was only a slight feeling of tightness. The hand was of natural temperature. She was able to do her work without feeling any inconvenience. She discontinued coming from this date, and I did not again see her for more than twelve months, during which she told me that she had been quite well.

XI.—RHEUMATIC PARALYSIS OF THE LEFT UPPER-ARM.

W. Eckstein, aged 36, was seized in the month of December with violent pain, commencing in the left hand, then shifting to other joints, but principally affecting the left shoulder and hand, the latter being much swollen. He was treated by several medical men; but colchicum, diaphoretics, emetics, corrosive sublimate, cupping, and vapour-baths, afforded no alleviation to his sufferings.

June 22nd, 1841. He consulted me. At this time he had an œdematous red swelling of the

back of the left hand, and pain in it and the shoulder. After the application of a current for five minutes he was able to close his hand more than before, and to move the shoulder without bringing on a paroxysm of pain.

23rd. The swelling of the hand was pale, the pain much less.

24th. The swelling was quite gone; there was pain in the left wrist, elbow, and shoulder, and in the right elbow. Raising the arm caused a good deal of pain. After the passage of a very powerful current all the pain was entirely removed, he could move his arm quite freely.

26th. There was slight pain in the right hand, left wrist, and triceps brachii, all which was removed by a powerful current.

28th. There was pain in the wrists and finger-joints.

29th. The finger-joints alone felt stiff; and he was able to go to his work. He did not consult me again until July 3rd. He still had stiffness of the joint of the left fore-finger and of both elbows. A current was applied as before.

9th. He had been at work the whole of the past week; there still remained in the elbows and left

fore-finger a slight feeling of stiffness, which was completely removed by another application.

Similar attacks of rheumatism are frequently met with after accidental injuries, especially when they have been treated with ice and cold-water dressing. But as we see such attacks occurring where this treatment has not been adopted, it seems to me more correct to attribute them to some injury the nerves have sustained, especially as these pains succeed paralysis following apoplexy, and injuries where cold applications have not been employed.

XII.—RHEUMATISM OF THE LEFT ARM.

Mrs. S., aged 54, a short, thin person, had been attacked nine weeks before with pleurisy, and was bled in the left arm, which became the seat of very acute continuous pain. It was felt in the upper-arm, shoulder, and elbow to so violent a degree that she never had more than two hours sleep during the night. Narcotics, cataplasms, and stimulating embrocations afforded her no relief.

August 20th, 1841. The patient came to me by the advice of the medical man who had been

attending her. I found that both active and passive motion of the shoulder caused severe pain; she could not move the elbow two inches from her side; flexion or extension of the fore-arm and fingers was impossible, and, consequently, rendered her unable to do anything for herself. Pressure on the upper arm or the cicatrix of the venesection was not painful; the latter could be freely moved over the parts beneath. The elbow was cool, pale, and puffy; and beneath the skin on the inner side of the fore-arm, and on the lower half of the upper-arm, there was an induration of the cellular tissue: the shoulder was surrounded by indurations which were adherent to the skin. The general health was good. The application of the electro-magnetic current was very painful over the induration on the inner side of the arm, but the motion of the limb was much benefited by it.

22nd-25th. A current was applied daily; motion became daily freer; pain was only felt on moving the limb; the indurated swelling on the inner side of the arm was gone, but that around the elbow and shoulder was still apparent.

29th. Motion was a little freer, and she was able to attend to her household duties, and dress

herself without assistance. On raising the hand to the opposite shoulder and backwards there was a tightness felt over the cicatrix and at the acromion. A current was applied.

30th. The same feeling of tightness; the nights were free from pain.

September 1st. She could move her arm in any direction without pain; but on carrying anything with the arm quite extended, she felt a tightness over the cicatrix, the swelling and induration were quite gone. She remained away until September 12th, when a current was passed daily until the 15th, and every fourth day from that date to the 30th, by which period she was perfectly recovered.

XIII.—RHEUMATISM OF THE LEFT ARM AFTER FRACTURE OF THE RADIUS.

Mrs. L., aged 48, a short, thin person, had an oblique fracture of the lower end of the radius, which united crookedly, impeding the motion of the wrist joint. February 5th, 1842, patient came to me complaining of pain in the fore-arm, and of very acute lancinating pain in the upper-arm and shoulder. The motion was much restricted; she

had had no quiet sleep for months, and was quite worn out. I found, besides the tumefaction on the back of the hand and wrist, a large induration of the cellular tissue on the external and posterior surface of the upper-arm and shoulder, which caused the upper-arm to look round and plump, whilst patient appeared to have fallen away in every other part. The induration extended along the external and posterior surface of the upper-arm, felt hard, was pale and shining, and the skin could not be pinched up over it. Patient ascribed the pain to the employment of ice in the treatment of the fracture, as it first commenced a short time after the ice had been discontinued, and whilst the arm was kept motionless by bandages. It would be of no interest to follow the case day by day, and, therefore, I shall only give the following details. At first only the pains which began spontaneously were affected by the electro-magnetic current, and she slept better. After the first week the nights were undisturbed by pain, and there was a slight increase in the motion of the fingers.

2nd Week. The swelling at the back of the hand was less.

3rd Week. The induration of the upper-arm was less, allowing more motion in the shoulder, and the arm to be raised higher.

4th Week. The swelling at the wrist was confined to the ulnar side, and the fingers could be quite closed.

5th Week. There was a very evident decrease of the induration in the upper-arm, and she could raise her arm so as to touch her right ear and shoulder. Using the left hand much caused the wrist to swell. I ordered it to be rubbed twice a day with a solution of the iodide of potassium.

7th Week. The induration in the upper-arm was quite gone, except a small place at the posterior surface, where the application was very painful.

8th Week. The arm could be moved freely backwards, but supination and pronation were not possible. The swelling on the ulnar side of the wrist was gone, and the motion of the fingers and wrist as free as could be expected, whilst the mechanical obstruction existed. Patient was now able to knit and use the hand pretty freely.

10th Week. The effusion at the posterior surface of the arm was absorbed, and its movements were quite free.

The symptoms in this case were much influenced by change of weather, especially the pain in the upper-arm and shoulder, which would begin in the night without any apparent cause. The swelling, pain, and loss of motion in the shoulder arose, I should say, from the injury to the wrist, the pain having commenced on the second day after the injury, and not from the application of ice to the wrist.

XIV.—CHRONIC RHEUMATIC PAINS, AND STIFFNESS OF THE NECK.

Mrs. M., a thin sickly-looking woman, had suffered the last eight years from stiffness of the neck, and acute lancinating pain extending from the nape of the neck to the top of the head, affecting also the forehead and upper-arm. The neck was bent so far forwards that her chin almost touched the sternum. The muscles of the neck were swollen, hard and like bands adherent to the skin through the effusion into the cellular tissue, which could not be moved over them, nor raised up in a fold. The back of the neck was swollen and hard, and the front was much atrophied; the sternocleido-mastoidei appeared wanting; they

felt beneath the skin like flabby, soft, thin bands, and, on a cursory examination, the neck seemed to consist alone of the swollen muscles at the back. She could move her head forwards, backwards, or sideways; she complained of a feeling of great pressure in the nape of the neck and shoulders, and suffered the most agonizing pain, which, for the last two months, had increased in the night to such a degree as to deprive her of all rest. The disease had been gradually getting worse in spite of all the treatment adopted, and for the last two months had become very violent; Russian vapour-baths which, on one or two occasions, were attended by slight benefit, being the only things that had afforded any relief. The neck was quite motionless: the most annoying symptom was a lancinating dragging pain extending from the nape of the neck to the top of the head and forehead, and feeling as if a claw had laid hold of the scalp, and was dragging it together.

June 7th, 1842. An electro-magnetic current was applied for the first time, and it was followed by an easier night than she had had for two months.

8th. The tightness of the scalp was less; the

neck was capable of a slight degree of motion sideways. The current was repeated.

9th. The current was repeated.

10th. The muscles of the neck felt softer.

12th. The pain lasted only two hours.

13th. The neck was much softer ; the dragging pain felt in the scalp was gone ; the pain in the shoulder was very seldom felt, and lasted but a short time. The patient made rapid improvement. The current was continued ; and I ordered the unguentum iodinii compositum to be rubbed into the muscles of the neck, to hasten the absorption of the effusion. At this stage of the case this work was in the press, so that I am not able to state the result, though I entertain no doubt of its successful termination.

HAVING now, I hope, established the value of rheumatic induration in the diagnosis of acute and chronic rheumatism, I shall extract from my notebook some cases in which certain parts of the body, or parts supplied by the branches of a nerve, are affected, and which can easily lead to diagnostic errors. A compilation of such cases must be of considerable practical value, as they show how these chronic rheumatic effusions cause, and are connected with, the various disturbances in the sensorial and motor functions. The accompanying symptoms appear sometimes as hyperæsthesia, anæsthesia, paralysis, clonic and tonic spasm, and as atrophy.

Rheumatic effusion is, in all these cases, the diagnostic sign; its application is simple, and its decision can be relied on.

The presence of induration always proves the rheumatic origin of the disease.

But the demonstration of the diagnosis being correct in the following cases, is evidenced by the fact that the anti-rheumatic treatment and resolu-

tion of the indurations always succeeded in curing them.

The proof that the rheumatic effusion holds a definite relation to the symptomatic disturbance of the functions, is afforded by the symptomatic form of the disease decreasing or disappearing in the same proportion as the effusion decreased or softened. The fact that I have procured the absorption of these indurations, entirely through the agency of electricity, may suggest that this is a remedy which acts directly on the nerves, and by which their increased or diminished irritability has been restored to the normal condition, without the presence or absorption of the induration having exercised any specific action. To refute this argument I can prove that the unguentum iodinii compositum alone has removed paralysis, by effecting the absorption of the callous effusion. I think no one will maintain that when this remedy was alone employed, it acted only as a nervine; therefore, the conclusion is evident, that when the electrical stimulus produces absorption of the induration, and cures rheumatic paralysis, it first stimulates the absorbents at the diseased spot, and in this manner indirectly removes the paralysis.

This observation explains why, in such cases, I now employ the ung. iodinii compositum and vapour-baths, along with electro-magnetism, with which combination I have every reason to be satisfied, although I have obtained the same result in nearly as short a time with electro-magnetism only. During my experiments on the therapeutic value of electro-magnetism, I confined myself to the application of it alone; but now that I am acquainted with its power, I employ the many other remedial agents we have in addition.

I. RHEUMATIC EFFUSIONS SPREAD OVER THE BODY.

XV. PARALYSIS OF THE RIGHT ARM AND OF BOTH LEGS.

In the following case nearly the entire body was covered with rheumatic effusions, and several medical men were of opinion that the paralysis was occasioned by disease of the brain or spinal cord. At the time I write it is still under treatment; but the result so far has been so satisfactory, as to justify me in speaking positively as to the cause of the complaint.

Mrs. M., aged 58, had been very strong and robust; caught cold, whilst washing, eight years ago. At first she was seized with acute lancinating

pain in her limbs, and difficulty of moving the left leg, which was swollen up to the knee. After using diaphoretics for a few days, the pain in the left foot suddenly subsided, but the next morning she awoke with a stiffness in the right arm and leg, the latter being swollen and very painful; the arm and hand were quite powerless, and had lost all sensation, for she accidentally burnt her elbow without being aware of it. The sensibility of the hand and arm gradually returned, but accompanied by very violent shooting pains, which, especially in windy weather, became insufferable.

May 23rd, 1842. The patient placed herself under my care; the right shoulder was drawn up, the trapezius felt hard and stiff, the upper-arm was very thin, and the cellular tissue at the back of the arm was indurated. The muscles were atrophied, and seemed adherent to the bones. On the fore-arm and hand was an induration of the cellular tissue, which, on the back of the hand, felt puffy. The muscles of the fore-arm had lost their turgidity, and felt hard. The fingers were firmly contracted, requiring considerable force to open them. Sensation in the arm and hand was feeble. Motion was quite gone; the arm hung down by

the side, not loosely, but as if the joints were stiff, and most agonizing lancinating pain was felt in walking, unless the arm was supported. She had very acute pain in the left hip, where the skin was indurated. In both legs there was a firm elastic swelling, over which the skin was dry, tense, and shining, and covered with brown scaly spots. Several distended veins could be seen ramifying through the skin. The ankles were much swollen, the feet were blue and cold, and she could neither move them nor the toes, consequently she stood and walked with great difficulty, and complained of a very wearisome pressure on the right shoulder. The rheumatic nature of the induration was characterised by the electro-magnetic current not having the slightest effect upon any of the affected muscles. A current was applied daily, the legs were fomented with lye, and afterwards with an alcoholic solution of iodide of potassium.

2nd Week. She had lost the feeling of weight on the right shoulder, and can walk about, with the arm hanging down.

3rd Week. Arm and legs felt lighter; she had continuous severe shooting pain; the electro-magnetic current had produced no change in the skin

or muscles, but now the skin of the shoulder and upper-arm reddened, and cutis anserina was seen here and there. The trapezius was a little softer, also the induration at the back of the upper-arm and over the deltoid.

4th Week. The electro-magnetic current produced slight muscular contractions in the trapezius, triceps brachii, supinators, and peronei muscles.

5th Week. The swelling of the hand was less, the fingers not so firmly contracted, the muscles of the fore-arm softer, extension and flexion of the wrist free. On the application of a current to the triceps, the fore-arm was a little extended; on the biceps it produced barely any effect, and the trapezius was powerfully contracted, raising the shoulder.

6th Week. She could abduct the elbow about six inches, and lift the fore-arm on to her lap. The muscles and cellular tissue of the leg were softer; she had more voluntary power over the muscles. Walking was easier, though, from the motion of the ankle being confined, she was obliged to take short steps.

7th Week. The electro-magnetic current acted on the muscles of the fore-arm, the swelling of which, and also of the hand, was much diminished;

the hand could be easily opened, and also partially closed at will; the fingers could be extended.

8th Week. The muscles of the arm and leg were softer; were all acted on by the electro-magnetic current, and subject to the will, with the exception of the extensors of the fingers. Windy weather brought on a paroxysm of pain, which was much less severe than formerly; the nights were free from suffering. Ung. iodinii comp. was employed.

11th Week. Treatment was resumed: she progressed very satisfactorily. The swelling of the right hand was being rapidly absorbed, the elbow could be voluntarily bent until it formed an obtuse angle; the right shoulder could be lifted up and lowered; the motion of the feet and toes was nearly free, and the anterior surface of the leg was no longer shining.

12th Week. The swelling about the ankle is very much less.

II. HEMIPLEGIA RHEUMATICA.*

We will now consider those cases of rheumatic effusion occupying one-half of the body. I have

* Dr. Golding Bird observes :—" Under the term rheumatic paralysis, I would include all cases in which the palsy followed the sudden application of cold, independently of any evidence of central

met with four cases, which, at the present moment, are under treatment, but considering that they are of much interest in a diagnostic point of view, I shall relate them, and the result of the treatment. The general opinion is, that affections which attack half the body are caused by some disease of the brain. If I assert that the following four cases are peripheric affections, my opinion will receive more consideration, by stating that, until Bell's discoveries, hemiplegia of the face was believed to be caused by apoplexy, but is now considered as peripheric disease of the facial nerve. The most important diagnostic symptom is the induration in the cellular tissue.

XVI. HEMIPLEGIA AND ANÆSTHESIA OF THE RIGHT SIDE.

Baroness S., aged 36, healthy complexion, and general health very good, but subject to nervous headaches and neuralgia. In the beginning of spinal lesion. Such cases are common enough ; they are sometimes attended with peripheral pains of a rheumatic character, and even occasionally with redness and tumefaction of the joints, which, however, is always evanescent. The line of demarcation between rheumatism, and some of these forms of eccentric paralysis, is very ill defined, and, indeed, lends considerable support to the idea of a close connection between rheumatism and some lesion of functions over which the true spinal system presides.—Ed.”

1841 she had a severe attack of neuralgia costalis, which was removed by galvano-puncture. The subsequent use of steel medicines, and drinking the waters of Pyrmont, enabled her to pass the second half of the summer in pretty good health. She had, during the winter, occasionally shooting pains in her right arm, and in the month of February the finger-ends felt numb. On the right fore-arm there was a spot, which always felt cold and numb, as also did the whole of the upper arm, and right side of the head and foot. This was succeeded by a feeling as if a cushion were beneath the sole of the foot; the numbness in the fingers increased, and the right fore-arm began to tremble. Pain was seldom felt, but the numbness on the right side of the head was very annoying on combing the hair. Cold had no effect, except when driving out in the cold, which brought on violent shooting pain in the forehead and right eye. Patient would not consult her medical man until her illness could no longer be concealed, in consequence of the trembling of the hand, and anæsthesia of the face. Blisters, stimulant embrocations, and unguentum veratri, rubbed into the back, were productive of no benefit, and patient having, on a

former occasion, derived benefit from electro-magnetism, again consulted me, and I applied a current, which, after an application of three weeks, removed the trembling and cold feeling, and diminished the shining induration in the cellular tissue near the neck. She had sometimes a dull heavy pain behind the right ear, and a singular affection of the vision, causing distant objects to appear as if moving about; with each eye separately she could see quite well. The sight of the right eye was not so good as that of the left. Patient became very anxious and alarmed, which caused an increase of pain in the head, chiefly behind the ear, and an increase of the affection of the sight to such a degree, that on looking at distant objects she had double vision, and a slight squint of the right eye.

On the 12th June a third physician was called in for consultation. There was hereditary predisposition to disease of the brain. Five years previous very acute pain was felt at the junction of the sagittal with the lambdoid sutures, which was removed by the employment of steel medicines (*Tinctura ferri acetici ætherea*), and she continued for two years free from pain. Since the beginning of winter the present affection had become gra-

dually worse, the patient's face was flushed, and the right side swollen; the right eye was somewhat smaller than the left, owing to œdema of the lower lid, the skin behind the ear felt doughy, and at the nape of the neck, and over the right shoulder, was swollen, indurated, firm, and could not be raised in a fold. There was induration of the cellular tissue, extending along the whole of the outer side of the upper-arm. Motion of the right leg and arm was impeded. The right eyebrow could not be raised so high as the left, the arm could be moved in any direction, but felt as if burdened by a heavy load, and when the attention was withdrawn, supination took place involuntarily. Motion of the hand was perfect, though there was an unpleasant sensation, as if each joint was swollen. The right leg felt weak, the knee trembled whilst standing, and gave way on walking, especially when rising from her seat; she took shorter steps with the right foot than with the left, and complained of a gradual diminution of sensation over the whole of the right side; the sense of touch was less than natural, and the right foot, on treading, felt as if there was a cushion below it. Another peculiar feeling was, that on warm fluids coming in contact with the inner side

of the right cheek, a burning pricking pain was felt. A continued pain was experienced behind the right ear, over the mastoid process, where the skin felt doughy: this was benefited by warmth, and aggravated by cold, or by gentle pressure. Her sleep was generally undisturbed; she was sometimes troubled with hoarseness, and an irritation causing a short, dry, nervous cough. My two colleagues were of opinion that there was some organic disease of the brain. I felt convinced that rheumatism was the cause, the more so, as no direct cerebral symptoms were present. As my view held out some hope, the patient was placed under my care.

My anxiety was, first to allay the general excitement, and then to employ diaphoretic and discutient medicines. The patient kept her bed for the first eight days, took antimonii potassio-tartras in refracta dosi, iodide of potassium, and afterwards the mineral waters of Franzensbrunn, in Bohemia; her bedroom was kept at a temperature of 66°, and the right side of the head was covered with cotton-wool.

1st Week. The numbness and feeling of cold were less, and the vision was better; the swelling

of the right cheek had subsided, and along with it the sensation on the inner surface of the cheek, the numbness about the head was less, but the scalp became so very irritable that she could not bear to have her hair combed.

On the sixth day of treatment she had a severe attack of earache, and acute lancinating pains, extending from the back of the right side of the head to the arm : since the profuse perspirations she had enjoyed more mental tranquillity, and occupied herself with reading and writing. On increasing the quantity of the Franzensbrunn waters she suffered from excitement and headache ; her head felt hot, and the perspirations decreased, so that she was obliged to return to the same quantity as before. A pediluvium and medicine allayed the excitement ; the disposition to perspire was unusually great, and was very agreeable to the patient.

4th Week. Patient discontinued the Franzensbrunn waters and took warm baths.

5th Week. Her arm, shoulder, and leg were covered with oil-silk : this produced a papular eruption, which was very slight over the induction.

6th Week. The patient could see very well, the

hoarseness was not quite removed. The scalp was tender and numb behind the ear. The shoulder felt free, the arm much the same, and the foot stronger.

7th Week. Menstruation natural, but great lassitude was felt during its continuance.

8th Week. The electrical treatment was resumed. The patient could walk better.

10th Week. The numbness of the scalp was gone, except in a small spot over the lambdoid suture; the neck was free, and the voice clear.

12th Week. I ordered salt-water vapour-baths to be taken daily for 20 minutes. Patient continued to improve, had no pain, the numbness of the right side was gone, except in a few small spots behind the ear, on the top of the shoulder, and in the finger-ends.

16th Week. The same treatment was continued; the use of the right hand was restored. She now took out-of-door exercise.

20th Week. The patient complained of nausea; the iodide of potassium was discontinued. I now ordered Dec. Dulcamaræ iſ ter die.

22nd Week. The patient caught cold, lancinating pains returned in the face and behind the

ear, the right lower eyelid was œdematous, the hand felt heavy, and the right foot was weaker, and she had also neuralgia costalis: these symptoms yielded in a few days to the treatment employed.

24th Week. The patient now only complains of a slight sensation of numbness behind the right ear, and a feeling of weight on the shoulder, where there still remains an indurated place. I have no doubt a few weeks more will suffice to remove all traces of her former complaint.

XVII.—HEMIPLEGIA RHEUMATICA OF THE LEFT SIDE.

Mr. B. came to consult me on the 13th June, 1842. Eight months before he suddenly felt a stiffness on using his hand, which gradually caused anæsthesia of the left side. The patient had been taking purgative, diaphoretic, and alterative remedies without deriving the least benefit. He now complained of loss of sensation in the whole of the left side. The sense of touch was but little affected, though the patient perceived occasionally a slight numbness in the finger ends, or a feeling as if there was a wound beneath the skin, which made it very painful to take hold of anything; the sole of the

foot also felt swollen ; the cheek, fore-arm, and left knee were cold, and the neck could not be freely moved, and the motion of the upper-arm was also restricted, so that it felt heavy and contracted when raised at a right angle with the body ; the palm of the hand seemed to the patient to be covered with wet cobwebs. He could not take such long steps nor tread so firmly with the left as with the right leg. The vision was not affected, nor were the functions of the intellect. I felt convinced that this was a pure peripheric affection, from the presence of small indurated places in the cellular tissue of the face, neck, upper-arm, and thigh. Treatment :—Russian vapour baths twice a-week, shampooing, and the daily application of an electro-magnetic current to the indurated places, diaphoretics, and warm clothing. The left side of the head, which was wrapt up, perspired very freely during the night.

2nd Week. There was less numbness in the left knee.

3rd Week. The feeling of coldness in the knee was quite gone. That of weight on motion of the upper-arm diminished, and the patient could move his hand easier.

4th Week. The arm and leg were covered with oiled silk in order to promote the absorption of the induration, but without success. The papular eruption* appeared later, and was thinner over the induration than in other places.

8th Week. The strength and use of the leg were natural. On raising the arm a tightness was felt at the insertion of the pectoralis muscle.

10th Week. The induration of the upper-arm began to soften, motion was freer, and the hand felt less awkward.

11th Week. The patient had now only the feeling of a net being drawn over his left side. The electro-magnetic current was discontinued, and the treatment confined to vapour baths and inunction of iodine.

20th Week. There remains merely a slight stiffness in the finger-joints.

* Dr. Golding Bird observes, in his Lectures, page 102 :—" When a current of electricity is made to influence the skin as exclusively as possible, great congestion of the cutaneous capillaries is produced, the surface becoming vividly reddened. If electricity of tension is employed, not only is this erythematous state produced, but a copious eruption of white papulæ, or rather wheals, is excited, forming indeed a good specimen of *Urticaria febrilis*."—ED.

XVIII. HEMIPLEGIA RHEUMATICA AND INDURATION
EXTENDING OVER THE RIGHT SIDE.

Mrs. B., of Charlottenburg, 22 years of age, had always enjoyed excellent health. At Easter she caught a very severe cold, was seized in the night with excruciating lancinating pain, and the next morning had lost the use of her right side. She could not stand, and every attempt to do so induced violent pain in the sole of the foot. There was also loss of sensation. Patient could not see distinctly; the right eye appeared smaller than the left, her face was distorted and swollen, her neck was cold and stiff, and the ends of the fingers felt numb and sore. She suffered from unremitting violent lancinating pain; purgative and diaphoretic medicines had been but of slight benefit. When she first came to me, July 21st, 1842, I observed the following symptoms:—The right side of the face was swollen, the right corner of the mouth drawn down. On the right side of the neck were two indurations, one extending from the back of the neck to the front, the other down to the shoulder; and the skin from the tip of the shoulder to the bend of the elbow and the fore-arm

was indurated. Over the right hip there was a firm, smooth induration, and another behind the trochanter major. The leg was swollen from the induration of the cellular tissue. Sensation had been nearly restored in the right side of the face, but the cheek was often very cold. The scalp was numb, and the patient complained of a feeling of a heavy weight pressing on the shoulder and upper-arm which restrained their motion: the finger ends had regained their sensibility. The skin of the leg felt cold, and was not so sensitive as healthy skin. The sole of the foot still felt swollen. Severe shooting pains frequently came on during the night in the back of the head, neck, and right shoulder. Patient could not open the right eye wide. The shoulder could be moved in any direction, but with difficulty. The upper-arm felt very heavy, and she could not hold light things in her fingers. The right arm was lengthened, and a hollow was felt under the acromion. On walking or standing the right knee frequently gave way, the foot dragged, and the toes turned inwards. Vision, which was not entirely restored, was most defective when patient was fatigued. The indurated places in the

upper and lower extremities were painfully sensible to the passage of the electro-magnetic current; they turned much redder than the surrounding skin, and round white spots were visible upon them. The following treatment was adopted:—The right side was kept very warm, and the head and face covered with cotton-wool. Diaphoretics were not exhibited, as patient had to drive a distance of five miles to be electro-magnetized. A powerful current was applied to the right side, and the indurated places were treated with ung. iodinii comp.

July 23rd. The arm could be moved more freely, and felt lighter.

25th. The right side of the face had a more natural feeling.

2nd Week. The indurations in the neck were of less extent and softer; the right shoulder felt lighter and stronger; the hollow between the acromion and the head of the humerus was less, and the pains did not recur so frequently.

3rd Week. The stiffness in the face was no longer felt. The arm was quite free, but still felt rather heavy; the feeling in the fingers was natural; the leg felt warmer; and the indurations in it were

softer. Patient could get into her carriage without assistance, but her gait was still unsteady.

4th Week. Face, head, and neck free; she had sometimes a sharp pain in the neck; the shoulder felt light. The induration in the upper-arm was less and softer; the feet felt lighter, but she was quickly fatigued; the leg was of a natural temperature; the toes still turned a little inwards.

5th Week. Had an occasional attack of pain in the shoulder; the hand was stronger, but she was afraid to lift small objects, lest she should let them fall; the toes were turned more outwards.

12th Week. The gait is now firm; the right foot continues a little stiff; the right hand can be freely used.

III.—RHEUMATIC AFFECTIONS OF THE FACE.

We now come to those cases in which single parts or nerves are the seat of the rheumatic affection. The face is the most exposed, and, therefore, most frequently affected; generally, the parts supplied by the facial branches of the fifth pair of nerves; nerves of sensation. The torture occasioned by this dreadful affection is sometimes excessive. The sufferers speak of it as anguish that is scarcely endurable, and you see,

in their quivering features and restless limbs, that the acute bodily pang is, indeed, hard to bear.

These affections may continue for years, and appear in three forms, viz., pain, paralysis, and spasmodic contractions of the muscles of the face. The fact that there exists so great a number of specific remedies for these complaints, each of which has been known or supposed to accomplish a cure, affords one of the strongest evidences of the intractability of the disease.

III. *a.*—RHEUMATIC PROSOPALGIA.

XIX.—RHEUMATIC TIC DOULOUREUX.

Mr. F., aged 30, consulted me on the 1st July, 1841. Three weeks previous he had caught a severe cold, and had since been suffering from rheumatic pains in the head and face, which at first were very violent, especially in the night, but during the last few days had decreased. I found the left side of the face puffy; the skin could not be pinched up in a fold; and the cheek sometimes turned red. I applied a gentle electro-magnetic current for a short time to the affected side, which immediately removed the pain, but there was a slight return of it towards the evening.

2nd. Patient had had a quiet night, and the

trifling pain he felt was removed by another application.

9th. Patient was quite free from pain, and discontinued coming.

XX.—RHEUMATIC PAIN IN THE COURSE OF THE FACIAL BRANCHES OF THE FIFTH PAIR OF NERVES.

Mr. N., 60 years of age, a strong robust man; his general health had been good. Three months previous to consulting me, he was travelling in very stormy weather, and a few days afterwards felt a burning sensation on the left side of the nose, which soon increased to intense pain; and for the last six weeks caused dreadful agony in the parts supplied by the three branches of the fifth pair of nerves. 5th July, 1842, he consulted me. The side of the face was slightly swollen; the lower eyelid was of a bluish-red colour; and the skin about the eyebrow, malar bone, canine fossa, and upper lip was firm and indurated. The internal canthus of the left eye was redder than natural, as also the skin below the left nostril. Firm pressure over the whole of the left side of the face caused no pain, but a light touch brought on paroxysms of violent stabbing pain, darting from the point touched to the eye and the top of the

head. These pains occurred with great intensity on blowing the nose, and on eating. At night he was generally free from pain, but paroxysms were brought on during sleep, through turning in bed, and touching the left side of the face, or by the tongue coming in contact with the palate; the pain caused a copious flow of tears. Patient was not so much reduced as might have been expected from his long suffering. I applied for three days a weak electro-magnetic current. After the first application the pain did not extend so much to the adjacent parts.

6th. The œdema of the lower eyelid had subsided.

7th. The induration over the malar bone was as large as a shilling; the pain remained away for a longer period, was less intense, and more limited.

9th. The induration was absorbed; patient had no pain, and it was not induced, as before, by eating, &c.

He has since remained well.

XXI.—RHEUMATIC PAIN IN THE COURSE OF THE BRANCHES OF THE FACIAL NERVE.

Miss G. came to consult me on the 18th June, 1841, in consequence of acute pains in the left side of the face, which had continued, with slight inter-

missions, from the middle of the previous winter. They first began after the patient had undergone great fatigue. She had derived benefit from various remedies for short periods, but the pain always returned after exposure to the cold air. Her medical attendant had applied leeches, and administered opium, and corrosive sublimate; cold baths were tried twice, but her sufferings being each time increased they were discontinued. In the spring, she had had four back teeth extracted, and she came to ask me if I approved of three more being drawn. I found the whole of the left side of the face swollen, caused by induration of the cellular tissue, but I did not discover a decayed tooth. The pain, which was very acute and stabbing, began at the malar bone, and spread to the alar nasi, chin, and sometimes to the right lower jaw; the malar bone felt as if it was being bored with a red-hot wire. The paroxysms of pain increased in the evening, and lasted all night; so that the patient never obtained any sleep until about 5 A. M., and then only slept for an hour or so. I ordered warm baths, warmer clothing, quinine, afterwards steel, and applied an electro-magnetic current every day to the face. After the first application she

suffered much less pain, and had a better night; the pain gradually decreased and remitted for longer intervals, and was always removed by the electro-magnetic current. The patient gained strength, and the induration of the cheek was absorbed by the fifth week. She had no return of pain until three months after, when acute shooting pain began in the right side of the face, brought on by sitting up for several nights at work in a cold room. Two applications of the electro-magnetic current removed it permanently.

XXII.—RHEUMATIC PAIN IN THE INFERIOR MAXILLARY BRANCHES OF THE FIFTH PAIR OF NERVES.

Miss B., 27 years of age, who had always enjoyed good health, was, after being exposed to a draught, attacked with severe lancinating pain, which commenced in the upper jaw, and extended to the ear and the back of the neck. Her medical man had given her purgatives and cooling medicines, and advised the extraction of three teeth (which were afterwards found to be quite sound), without the patient deriving any benefit. On the 18th February, 1842, she came to consult me, complaining of violent pain in the ear, which seemed to spread thence to the forehead, upper

lip, and chin. About the right lower eyelid, the malar bone, and behind the angle of the lower jaw, there was a good deal of induration, so that the skin felt distended, and had a shining and bluish-red appearance. These parts were not painful when touched, but change of weather and high winds brought on immediately an attack of pain. Menstruation was healthy, and its appearance had no effect on the pain. I advised a generous diet, and recommended her to wear warmer clothing, to keep the face and head wrapt up, and to take elder-flower tea at night, to induce perspiration. The swollen and painful places were daily electro-magnetised.

After seven days the pain was much less acute, returned only in the afternoon and occasionally at night.

4th March. Patient was free from pain. It returned after a few days, behind the ear, in attacks which lasted for half an hour. The swelling in the cheek and eyelid was quite gone, but behind the angle of the jaw, and on the neck, there was still a little stiffness remaining. These places were kept well covered up with cotton wool, and daily electro-magnetised.

10th. The pain had been very trifling during the last few days, had lasted but for a short time, and the swelling was less.

12th. She had been free from pain, and on the 22nd left Berlin. Patient continued perfectly well until the end of April, when she had an attack of pain beginning behind the mastoid process on the right side, which gradually spread to the ear and the whole of the right side of the face. During the months of May and June, she suffered from continual pain: particularly at night and in stormy weather, it increased to dreadful torture; she had four more teeth extracted, and took narcotic and derivative medicines. After enduring these sufferings for three months she returned to Berlin, and placed herself under my care. The pain commenced behind the right mastoid process, passed through the meatus auditorius (where she felt an acute burning pain), and spread over the whole of the right side of the face and head. Behind the mastoid process there was a doughy swelling the size of half-a-crown, and another smaller one over the malar bone, which gave, on a cursory examination, the impression, that the bone was enlarged. These indurated places did not feel hot or painful

when touched. Electro-magnetic currents were again applied, on which the pain ceased immediately, but for the first five days, only remained away from two to five hours.

July 24th was a remarkably stormy day, and patient was obliged to keep her bed in consequence of the violent unremitting pain she suffered. Warmth applied to the head and face was found beneficial. The intervals between the attacks of pain were daily lengthened by the application of the electro-magnetic current.

August 2nd. Patient had for a quarter of an hour a slight (and as she expressed herself) superficial pain. She had no pain now at night.

3rd. The patient came for the last time.

The importance of the rheumatic induration in the diagnosis and treatment of these cases cannot be denied ; it explains why cold baths, which in true prosopalgia are attended with so much benefit, prove in these so injurious.

III. *b.*—RHEUMATIC FACIAL PALSY.*

We now come to facial palsy, which is accompanied by rheumatic effusion into the cellular tissue,

* Dr. Golding Bird remarks in his Lectures :—"Paralysis of the portio dura is a not unfrequent affection, and I dare say it has

and is confined to the branches of the facial nerve. Formerly these cases were considered as arising from apoplexy, until Sir Charles Bell showed that they arose from the functional disturbance of a single motor nerve. This view is now too frequently adopted as the correct one in every case; but as it has been observed that facial palsy is sometimes caused by organic disease of the brain or of the facial nerve, or of the canal through which this nerve passes, this complaint must not invariably be treated as simple peripheric disease of the nerves, which it would be if Sir Charles Bell's theory were always adopted. From the present

fallen to the lot of my auditors to be called to cases of this kind after the patient has been bled, cupped, blistered, mercurialised, and his health and constitutional power shattered by such unnecessary treatment,—a treatment for which the most profound ignorance hardly affords an excuse. The history of the cases is sufficiently intelligible. A person previously in health exposes one side of the face to a little draught of air, as by sleeping near a window having a broken pane, or travelling in a railway carriage with a half-open window. The result of this is more or less pain and stiffness in the side of the face, followed soon by paralysis of the facial nerve. In such cases the stimulus of electricity remarkably aids the cure: I say the stimulus of electricity, because in such cases it appears pretty certain that the agent in question acts merely as a local excitant, stimulating the paralysed muscular fibres, and arousing their normal irritability, and once more placing them under the dominion of the will.”—Ed.

state of our knowledge we must admit that facial palsy may be the consequence of an apoplectic hemiplegia, or of some organic disease of the facial nerve, or of the canalis Fallopii ossis temporum, or of (and this most frequently) rheumatic paralysis of those muscles which are supplied by the facial nerve. We will leave for the present undetermined whether we shall consider facial palsy as a pure neuralgic affection or as a peripheric disease, beginning with rheumatic effusion into the cellular tissue, which then acts as a cohibition to the motion of the muscles, or of the function of the nerve which passes through the effusion. I have always observed that the induration of the cellular tissue is not only invariably present in facial palsy, but that it also bears an exact relation to the degree of the paralysis; and that the muscles have not lost their contractility from the want of the vis nervosa, as in apoplexy, or from destruction of the root of the nerve, but from the diminished contractility of their own fibres. This is exemplified in apoplectic paralysis by the electric current always producing violent contractions, whilst in facial palsy it causes at first no contraction. If we consider the effusion to be the cause of the cohibition, those remedies

which produce more active absorption are clearly indicated. Experience has taught us that pure nervines, and particularly strychnia, is useless in facial palsy. Recent cases are often cured in 8-14 days by powerful diaphoretics and external derivatives; but when the disease has become chronic, it is well known to be very difficult of cure, and in most cases is not relieved by such means. The treatment I adopt consists of the application of electro-magnetic currents, friction, warmth, and the inunction of the ung. iodinii comp.: the following cases will prove that a favourable result may be looked forward to with confidence.

XXIII.—FACIAL PALSY AFFECTING THE RIGHT SIDE.

Mr. L., a short, thick-set, powerful, and healthy-looking man, 46 years of age, and had always enjoyed excellent health. In consequence of taking cold in 1840, he had an attack of facial palsy on the left side, which was removed in two months by the usual treatment. In February, 1841, he again caught cold, when the right side of the face was palsied. He came to Berlin, to consult Dr. Boehr, on account of a chronic inflammation of the right tonsil. Not finding that his face was benefited by

the treatment employed, he consulted Professor Schoenlein, who advised that the palsied muscles should be electrified. On the 28th April, 1841, the patient consulted me. His right eye watered very much, the nose was drawn to the left side; on talking, laughing, and on opening the mouth, the under lip was drawn downwards, and towards the left side. Patient could not contract the upper lip sufficiently to expose the upper teeth of the right side. The right side of the face was puffy, and the cheek and under lip swollen from induration of the cellular tissue. I advised the face to be kept very warm, well rubbed, and the application of a weak electro-magnetic current.

29th. The electro-magnetic current was applied three different times (as patient was obliged to leave Berlin on the 1st May). Lachrymation was less, and on opening the mouth the upper teeth were exposed.

30th. The current was applied twice.

May 1st. The electro-magnetic current was applied three times. The mouth was drawn much less to the left; the nose was no longer drawn to the left on laughing, the upper lip could be raised higher, and the secretion of tears had quite ceased.

XXIV.—FACIAL PALSY AFFECTING THE LEFT SIDE.

C. N., a printer, 20 years of age, walked home in February, 1841, in a very cold night, with a piercing easterly wind, when greatly heated from dancing. The next morning he had an inflammatory swelling of the left cheek, accompanied with acute lancinating pain, and on the inflammation subsiding, the left side of the face remained swollen and paralysed. His medical man employed the usual remedies without any benefit. On the 5th May, 1841, the patient consulted me. The left side of the forehead and eyebrow were perfectly motionless, the left ala nasi was lengthened, and the nose was drawn to the right side. The left corner of the mouth dropped a little ; on opening the mouth the teeth on the left side could not be seen. The left side was motionless on laughing, whilst the right was drawn towards the right ear. Patient could not whistle, and on drinking, the fluid ran out at the left corner of his mouth. In this case I confined the treatment to the employment of electro-magnetism, which was daily applied for four months. The induration of the cellular tissue first began to soften in the lower half of the cheek.

After the first application of the electro-magnetic current, the motion of the left side of the mouth was freer.

After the second, fluids did not run out at the left corner of the mouth.

In a fortnight patient was able to expose his teeth as far as the first molar.

4th Week. The flow of tears had ceased.

6th Week. He was able to whistle, and to move his eyebrows a little, as the effect of the corrugator supercilii muscle.

8th Week. The induration of the skin of the forehead and eyebrow was absorbed, that over the fossa canina and left ala nasi was more obstinate.

12th Week. There was slight movement of the frontal portion of the occipito-frontalis muscle, the eye could be quite closed and firmly compressed; slight motion in the ala nasi.

16th Week. The swelling of the left side of the face had entirely disappeared, and there was only a little induration felt deep in the canine fossa; the motion of all the parts was nearly restored, and very little difference could be seen, on laughing, between the two sides of the mouth. A few more

applications completely removed all traces of his former complaint.

In January, 1842, his father called on me to say that he continued quite well.

XXV.—RHEUMATIC PARALYSIS AFFECTING THE RIGHT
SIDE OF THE FACE.

W. E., 36 years of age, a strong, healthy-looking man, was exposed on the 11th December, 1838, in a snow-storm, and was attacked with pain in his teeth and ears, and the right side of his face was very much swollen. The pain subsided in a fortnight, but the swelling continued the same for three months. The right side of the face was motionless, and he felt as though it were being dragged to the left side: this was succeeded by paralysis of that side, affecting the tongue, and causing an impediment in speaking. The saliva flowed out of his mouth during mastication, which was very imperfectly performed, and he was not able to drink unless he compressed his lips with his fingers. There was no pain, and the cheek felt tense, and was pale, cold, and stiff. There was constant lachrymation. The cellular tissue of the forehead and cheek was indurated. On the 6th

May, 1841, the patient consulted me, and was daily electrified, one pole being placed over the stylo-mastoid foramen, whilst the other pole of the machine was moved about over the face.

9th. The flow of tears had ceased. The eye could be closed.

16th. The eye could be firmly compressed, the lips were freer, patient could whistle, the platysma myoides muscle felt softer. The induration of the cheek was but slowly absorbed.

June 19th. The forehead could be corrugated and the right cheek was more plastic.

June 20th to July 8th. The treatment was discontinued.

In September and October the application was very irregular. The motion of the right cheek was free, except on laughing, when it was a little distorted. The induration had disappeared. The flow of tears did not return after exposure to a cold wind, and on talking no distortion was perceptible. Patient now declared himself very well satisfied, and discontinued coming.

In March, 1842, he came to me in consequence of suffering from rheumatic pain in the left side of the face, brought on through taking cold: a few

applications of the electro-magnetic current sufficed to remove it. I then saw that the paralysis had not returned ; that the motion of the right side was natural ; and in short he had been cured of his former complaint.

XXVI.—FACIAL PARALYSIS AFFECTING THE RIGHT SIDE.

Miss W., aged 7 years, a very cheerful and pretty child, was, 13 months ago, suddenly paralysed in the right side of her face : at first there was a slight swelling of the cheek ; on the following day inability to close the eye ; and, on the third day, complete paralysis of the right side of the face : the child was otherwise well, and she did not complain of pain. Diaphoretics, purgatives, rubefacients, steam and stimulating embrocations, were applied with much perseverance, whereupon the swelling nearly disappeared, but the paralysis was not affected. On the 15th September, 1841, she was brought to me, the right cheek was indurated, the right ala nasi and lip were immoveable ; she could draw the under lip a little downwards and to the right, and she was not able to whistle. When both eyes were closed, the right remained a little open, and the corrugator supercilii muscle did not contract. When the little

patient laughed her face was very much distorted. The flow of tears was always increased when in the open air. As only a weak electro-magnetic current was applied, the improvement progressed but slowly ; notwithstanding in a fortnight she could close the right eye completely, and she could point her lips as in whistling. The upper lip could be slightly moved, and the ala nasi continued motionless.

By the end of October, she could compress the eye firmly, and move the corrugator supercillii muscle a little, the upper and under lip were drawn further to the right, and on laughing there was more similitude with the other side of the face. The ala nasi was motionless, and showed not the slightest agitation when the electro-magnetic current was applied.

By the end of November, the motion of the forehead was quite natural ; no difference was perceptible between the two sides when the face was at rest ; and the distortion caused by laughing was very trifling. A firm indurated spot could be felt over the canine fossa ; the ala nasi continued the same.

From the 24th November to the 4th December, this indurated place was almost exclusively electrified ; and, on the 4th of December, I first perceived

the ala nasi to be agitated by the passage of the electro-magnetic current. On the 5th December, the treatment was discontinued, in consequence of the little patient having the scarlet fever. In June, 1842, the child's uncle (a physician) informed me that he had continued the application of the electro-magnetic current, under which she had progressed most satisfactorily, and that he was desirous she should remain under my care until she had completely recovered from her malady.

XXVII.—FACIAL PALSY AFFECTING THE RIGHT SIDE.

Anna M., 11 years of age, was brought to me by the advice of Professor Romberg. This child, when only nine months old, had been carried in a cold December night from a heated room, across the street, without being wrapt up; the following morning the right side of the face was swollen and paralysed. In the course of the year, various remedies were employed without any benefit. In the summer of 1840, the child was brought to Berlin, where different medical men were consulted, amongst whom was Professor Romberg, who advised the parents to try electro-magnetism.

The right side of the face, the frontalis and

corrugator superciliorum muscles were paralysed. The mouth was drawn so far to the left, that the middle of the upper lip corresponded to the centre of the left nostril. On drinking, the fluid ran out at the right corner of the mouth, and the face was much distorted on speaking and laughing. The induration of the cellular tissue extended over the whole of the right side of the face. The skin on the right side of the forehead was raised above that of the left. Lachrymation from the right eye was very copious, and in cold weather produced excoriation of the cheek. When the child attempted to read, the right eye was so irritable as to be suffused with tears, and prevented her from seeing.

17th November. A gentle electro-magnetic current was applied for 10 minutes. The electro-magnetic current was daily applied (with the exception of the Sundays and three weeks at Easter), until the 4th July, when owing to the child having the measles it was discontinued.

18th. She could close the eye.

20th. There was slight movement in the corrugator supercilii muscle.

1st Week. The zygomatic and labial muscles

were slightly agitated by the passage of the current.

2nd Week. She could compress the right eyelids slightly; the flow of tears was diminished, and only occurred when exposed to the cold, and in reading, when the eyelids were also spasmodically contracted.

3rd Week. The right side of the forehead was not so swollen.

5th Week. The mouth and lower part of the nose, when at rest, were in their natural position; the corrugator supercilii muscle could produce slight wrinkling of the forehead.

6th Week. The right corner of the mouth could be drawn upwards and downwards.

7th Week. Strong currents were applied to the right quadratus menti muscle. Ung. iodinii comp. was ordered to be well rubbed into the right side of the face.

8th Week. The swelling in the forehead was absorbed.

11th Week. Fluids no longer flowed out at the corner of the mouth on drinking.

12th Week. The indurations in the cheek were much softer.

13th Week. Quivering on the passage of the current was observed for the first time in the frontalis muscle.

14th and 15th Week. The little patient not being well, the treatment was discontinued.

18th Week. Lachrymation had ceased, and the patient could read without bringing it on.

22nd Week. There was no perceptible difference between the two sides of the face, and the mouth was drawn less to the left on speaking.

25th Week. The patient was taken into the country.

33rd Week. She had the measles: there was now only slight induration in the middle of the right cheek; the right eye could be closed, but not so firmly compressed as the left. I have no doubt that, through this treatment being continued, perfect restoration of the motor functions will be established, although it will require to be persevered with for some time.

III. c.—SPASMODIC CONTRACTIONS OF THE MUSCLES OF THE FACE.

We now come to a complaint which would seem to be the very reverse of facial palsy, and

which is not only accompanied by rheumatic effusion, but is also treated in the same manner. I refer to the spasmodic contractions or twitchings, so often met with in the muscles supplied by the facial nerve. The mildest form, and what constitutes the first symptom of the complaint, is the vibration of single fasciculi of the orbicularis palpebrarum muscle.

A cold or a rheumatic toothache has generally preceded these slight twitchings, in which case they form a sympathetic nervous symptom. Sometimes we find they extend from the eyelids to the ala nasi, upper lip, corner of the mouth, chin, and forehead; when they become an extremely obstinate affection, often continuing for years and resisting every form of treatment. The twitching of the eyelids is very obstinate and annoying; there is generally at the same time slight œdema of the lower lid. In every case where these twitchings have not been confined to the eyelids, I have always found induration of the cellular tissue. This it was which led me to the conclusion that rheumatism was the cause; for chronic rheumatism appears in the form of pain or of paralysis, and this affection also appears either as

paralysis or as an increased irritability of the muscles. In the cases which have come under my observation, the affection was attributed to taking cold; I therefore directed my treatment to promote the absorption of the effusion, and the result has confirmed the correctness of my view.

XXVIII.—CHRONIC CHOREA OF THE LEFT SIDE OF THE
FACE.

Miss S., 38 years of age, fair, of healthy complexion, and whose general health had been very good, was affected sixteen years ago with slight twitching in the left lower eyelid, which had been gradually getting worse, and now she had a constant involuntary winking of the left eye. In 1834 the complaint had extended itself over the whole of the left side of the face; and in this state it had remained to the 29th January, 1842, when I first saw her. The patient suffered from continued contraction of all the muscles of the left side of the face, which caused the eye to be firmly compressed; the outer end of the eyebrow was drawn downwards and inwards; the ala nasi, upper lip, and corner of the mouth, were drawn upwards, and to the left, the lower lip was drawn downwards

and backwards, so as greatly to disfigure her, and she had a disagreeable feeling of stiffness in the lower half of the cheek. On the least perturbation, the twitching became more violent and continuous, and when the patient attempted to read aloud, spasmodic closure of the eyelids was induced, which lasted for several minutes, accompanied by a copious flow of tears from the left eye. The patient, having tried in vain a multiplicity of remedies, became reconciled to her affliction, and it was with great difficulty that she could be induced by her relatives to consult me.

On her first visit, the twitching of the face was very violent, and continued so for the next day or two, preventing her for several minutes at a time from speaking, until the violent contractions of the muscles had subsided. On examining the skin of the face, I found that on the left side it was firmer and stiffer than on the right, particularly the parts over the parotid gland, canine fossa, and the whole of the lower jaw and side of the neck were very much indurated. The treatment was confined to the application of a weak electro-magnetic current to the left side of the face. In the first two weeks, the contractions did not continue for so long a

time, and immediately after the application of the current, the left side of the face felt freer; the twitching continued unabated, and in cold, windy weather, was particularly violent, when also lachrymation was increased.

4th Week. The patient observed that the left side of the face felt warmer than the right, and was covered with a slight perspiration.

5th Week. Decided improvement was now evident; the patient continued free from the contractions for half or a full hour at a time, and she observed that they did not occur on reading.

6th Week. The corner of the mouth was not so much contracted, the anterior portion of the cheek had become softer, and the eye only was occasionally affected.

7th Week. The twitching was much less, but there was general nervous irritability. I ordered her to take a few warm baths, and to drink the mineral waters of Pyrmont.

9th Week. Her general health and the twitching were much improved.

10th Week. The twitching was sometimes confined to the eyelids, and was seldom violent.

12th Week. The induration behind the ear and

over the parotid gland was still of considerable size, and I ordered that the ung. iodinii comp. should be applied to those parts.

13th Week. The patient observed that there was an unusual feeling of softness and pliability of the skin on the left side of the lower jaw and neck.

14th Week. The twitching was very trifling.

16th Week. Treatment omitted.

17th Week. The patient complained of a slight shooting pain in the left side of the face, which always quickly subsided after the application of a current.

18th Week. Patient observed that she was much better. The left eye was quite open, the twitching occurred but seldom, and was only a momentary contraction.

19th Week. Omitted the application.

22nd Week. The patient left Berlin. The ointment was continued; the skin over the parotid gland and behind the ear being still somewhat indurated and stiff. On her return at the end of October, the electro-magnetic treatment was resumed. There was a little induration and stiffness of the skin above the canine fossa; the twitching

was most frequent in the lower eyelid, that of the mouth ceased for several hours together, and when it did occur was so very slight that the patient was scarcely sensible of it; the eye now never closed involuntarily, nor was there any lachrymation. In the next four weeks the strength of the electro-magnetic current was increased, which was followed by decided improvement: the twitchings now recur but seldom, and are very slight and transient.

XXIX.—CHRONIC CHOREA AFFECTING THE LEFT SIDE
OF THE FACE.

Mrs. R., 30 years of age, came to consult me on the 21st May, 1842. She said that for the last four years her eyesight had been failing, and she had been advised by her medical man to try electro-magnetism. She was suffering from amblyopia amaurotica: her functions were regular; she was pale, debilitated, and depressed; she had continued spasmodic contractions of the muscles of the face, varying with change of the weather, and which, from their violence, would often stop her in the midst of speaking. She had been subject for several years to attacks of rheumatism, and this present affection succeeded one of these

attacks four years ago. It began in the left lower eyelid, and gradually implicated all the muscles of that side of the face. The treatment which had been adopted produced no relief. When she came to me, I found that the left eyebrow and cheek were indurated. The left eye was very irritable, the left nostril dry, and there was sometimes very copious lachrymation.

The first fortnight I applied electro-magnetic currents to the eyes without (as I had expected) any benefit. I prescribed a generous diet, the mineral water of Pyrmont, and warmer clothing.

3rd Week. I now directed the treatment to the spasmodic contraction of the muscles of the face, and advised the inunction of the ung. iodinii comp., electro-magnetism, and local diaphoresis. This treatment was pursued for eight weeks, when she was obliged to leave Berlin. She progressed during this time most satisfactorily; the induration was almost absorbed, and the contractions were only momentary and very slight.

XXX.—CHRONIC CHOREA IN THE FACE.

On the 26th May, 1842, Mrs. S., a widow, 28 years of age, consulted me on account of a spas-

modic twitching of the muscles of the face, which, for the last 14 months, had been a constant source of pain and annoyance. She had always been in the enjoyment of good health, and believed that her complaint was attributable to a cold. In the winter, 1840-41, she first perceived a slight intermitting twitching in the left lower eyelid, which increased in frequency and violence after exposure to the impression of cold, and gradually affected both eyelids, the cheek, and upper and under lips. The remedies which had been used were of no benefit; and, after a slight attack of rheumatic fever in February, 1842, the affection increased to its present state. The convulsive twitchings were induced by speaking and by the slightest perturbation. In the morning on waking they were the most violent, and decreased towards evening; keeping the face warm and quiet afforded some respite from pain. The patient had suffered from nervous irritability for the last six months. The rheumatic nature of the complaint was evidenced by the face looking puffy and indurated. The patient had a disagreeable feeling of stiffness in the cheek, which she was constantly endeavouring to remove by rubbing. In cold windy weather the

convulsive twitchings became so violent that the corner of the mouth was sometimes drawn to the left side, and the eye could not be opened; sometimes they followed each other in rapid succession, turning the head involuntarily round to the left, and the features were very much disfigured. I advised warm clothing, the mineral water of Pyrmont, the ung. iodinii comp., and electro-magnetism.

1st Week. Patient observed a decrease in the severity, but not in the frequency, of the contractions.

2nd Week. She observed that immediately after the application of the electro-magnetic current, the contractions occurred less frequently, and the movements of the left side were freer.

3rd Week. Towards the evening she remained for some time free from pain; the contractions were decidedly less frequent, and did not affect the eye.

4th Week. The patient often remained for hours, especially whilst in the open air, free from the contractions, and they were not so violent on talking; each spasmodic contraction passed like a flash of lightning, and the mouth did not feel as if

it were affected by them. The swelling on the left side was less, but the skin still felt firm and stiff.

5th Week. She continued to improve.

On the 30th June, through cold bathing, her face swelled, lancinating pains were felt in the left upper-jaw, and the spasmodic contractions were more frequent and violent.

6th Week. The swelling pain and increased frequency of the contractions were removed in a few days by diaphoretic medicines, after which she continued to improve.

7th Week. Patient was free from the twitching for three or four consecutive hours; it was most felt in the morning on waking.

14th-16th July. The swelling had disappeared, and, except for a short time in the morning, the patient was free from the twitching.

8th Week. There was now only occasionally a momentary contraction felt in the eyelids.

10th Week. The complaint was completely removed. I saw the patient in the course of the winter: she had had no relapse, and the cold weather had not the least effect upon her.

XXXI.—CHRONIC CHOREA AFFECTING THE LEFT SIDE OF THE FACE.

The Baroness A., 58 years of age, had suffered for 16 years from spasmodic contractions in the left eyelids, which had been brought on by fright. They gradually extended, and affected all the muscles on the left side of the face. Excitement or change of weather increased them; and sometimes when reading, she was compelled to desist, as the eye would be quite closed, and the tears flow as though she were crying. The twitching was continuous and violent, and the left eye was always smaller than the other; the corner of the mouth was drawn upwards and towards the left. When the twitching was very violent, patient suffered from headache. The left side of the face felt indurated, and the skin twice as thick as it should be. The patient had arranged to leave Berlin in a fortnight, when she came to consult me on the 15th June, 1842. I prescribed ung. iodinii comp., and the application of the electro-magnetic current.

June 22nd. The eyelids were not so firmly compressed.

25th. The twitching was neither so frequent

nor so violent. Patient is now able to open the left eye as wide as the right.

27th. The patient's countenance was no longer distorted; the twitching had abated very considerably. The induration was much softer, and the patient could read without the closure of the eye supervening. Unfortunately she was obliged to leave Berlin, for I felt confident that this treatment would have freed her from this troublesome affliction.

IV.—RHEUMATIC PAINS IN THE OCCIPUT AND NAPE OF THE NECK.

We will now proceed to those cases in which the rheumatic affection is seated in the occipital nerves. This affection is generally very obstinate and unyielding, and is not only met with in the form of pain, but the motor functions are also frequently impeded. This occurs principally when the complaint has become chronic; and sometimes there is partial paralysis of the muscles of the neck, constituting paralysis agitans, which is very often brought on by rheumatism.

XXXII. RHEUMATIC PAINS IN THE HEAD.

Auguste L., a servant girl, 27 years of age, was admitted into the Charité Hospital on the 8th April, 1841. For the fortnight previous she had complained of shooting, dragging pains in the thighs, side, and back of the neck, palpitation of the heart, loss of appetite, and cold shiverings; the pulse was frequent, the tongue white, and covered with mucus; the abdomen soft, and not tender when pressed. Treatment—

R Sol. potassæ bicarb. ʒvi.
 Vini antimonii potassio tartratis ʒi.
 Aquæ lauro-cerasi ʒii.
 Syrupi simpl. ʒss.

Misce. Sumat cochleare magnum secundâ quâque horâ.

April 9th. She had passed a restless night; the pain and febrile symptoms had increased; the pulse was full, hard, and frequent. Venæsection, ad ʒviii.

10th. A warm bath, and ol. ricini ʒi.

16th. R Infusi absinthii ʒvi.
 Tinct. valerianæ co. ʒii.
 Syrupi simplicis ʒiv.

Misce. Sumat cochleare magnum secundâ quâque horâ.

The patient now rapidly improved: towards the

middle of the month, severe pain in the back and thighs announced the commencement of the menses, which were very trifling, and disappeared in two hours; but the pains still continuing, mustard poultices were applied to the calves of the legs and over the abdomen.

On the 3rd May, the patient complained of pain along the vertebral column, extending from the neck to the sacrum: she was ordered to be cupped on the back, after which she felt easier. In a few days she again complained of pain and headache, and was again cupped, a blister applied to the back of the neck, and a saline draught administered every six hours: in a few days she was able to continue the tonic medicine.

She again complained of pain in the shoulders and lower extremities, violent shooting pain in the occiput and temples, and loss of sleep. Ordered aqua foetida antihysterica, one drachm, three times a day, and morphia acetatis, a quarter of a grain at night.

May 16th. Electro-magnetic currents were applied to the temples four times a week, for five minutes each time, until the end of the month, when the headache and pain in the upper and

lower extremities was removed. The pains about the temples and back of the neck, which were very slight, disappeared on the application of a weak current, and did not return for 24 to 48 hours.

June 10th. The electro-magnetic currents were no longer applied, as the patient had been free from pain since the 5th instant, she was now discharged cured.

June 23rd. The patient called to thank me, and to say that she continued free from pain.

XXXIII. ACUTE LANCINATING PAINS IN THE OCCIPUT AND BACK OF THE NECK.

W. H., 48 years of age, a carman, had suffered for 12 years, without intermission, from very acute, shooting, and throbbing pains in the scalp and upper part of the neck. They varied in severity, being most acute in windy weather; were felt less when the atmosphere was dry and cold, and least of all during the heat of summer. Seven years before the patient had consulted me, his digestive organs being also deranged, he was ordered purgative medicines, the muriate of ammonia, in half-drachm doses, dissolved in water, three times a day, and warm baths: this treatment

mitigated the pain and removed the disposition, which followed each irregularity of diet, to increase the pain to perfect agony, which always continued from 8 to 14 days. Two years afterwards he again consulted me, the agony of his sufferings obliging him to relinquish every occupation. I advised him to take Russian vapour-baths, and to apply mustard poultices over the seat of pain: he derived but little benefit from this treatment, the pain always increasing to the same intensity in damp and cold weather.

In the winter of 1841-42 he again consulted me. I advised him to try blisters, mustard poultices, and vapour-baths; but these obtained him no release from his excruciating and maddening sufferings. The muscles of the head and neck were rigid and contracted the skin felt firm, indurated, and as though it were adherent to the bone at the back of the head and over the forehead. The pain always became worse towards evening, depriving him of sleep: it passed from the temples to the forehead, and remained fixed at the top of the head, which he was obliged to bend forward and keep motionless, with his eyes half closed. I advised him to take a warm bath every other day,

and applied an electro-magnetic current to the parts affected. At first the pains remained away only for an hour at a time ; but the interval became gradually longer, and they diminished proportionably in severity until an entire removal was effected.

In three weeks the muscles of the head and neck and the skin had regained their natural condition, except a small place in the forehead, which was very slowly acted upon : when this place was removed, the patient was quite free from pain. In March, 1842, the patient, when out in the cold easterly winds, had attacks of shooting pain in the head, which *ol. sinapis æthereum solutum* in spirit. ten. rubbed over the place took away ; or, if this failed, one application of the electro-magnetic current was quite sufficient.

XXXIV. RHEUMATIC PAINS IN THE HEAD AND NECK.

C. U., a box-keeper at the opera, 38 years of age, had had for the last two years, with but short intermissions, excruciating pain in the top of the head and back of the neck, which, in windy weather, and during the night, was very much worse, extending to the forehead and orbit.

April 26th, 1842. The patient consulted me, having suffered for the last five months without intermission, and deriving no benefit from any of the very many remedies he had tried. He looked very haggard; the muscles of the neck were stiff and indurated; and the skin of the neck, or back of the head, could neither be moved over the parts below, or pinched up into a fold; over the arcus superciliaris there were several hard places felt, the skin above which was red. A gentle electro-magnetic current was applied for some time to all the affected parts. After the first application, patient passed a quieter night.

April 27th and *28th*. The pain returned in the morning; the application of an electro-magnetic current removed it until towards the evening.

29th. The muscles of the neck felt softer; the induration of the cellular tissue on the forehead was nearly absorbed; the eyes could be opened quite wide, and the head was no longer held so stiffly.

30th. The pain in the morning was but trifling, and a current freed the patient from it immediately.

May 1st. No return of pain occurred in the

morning, the skin over the back of the head could be moved about freely, and the forehead was quite smooth.

3rd. The patient took a warm bath, and went out incautiously without drying his hair; a very severe attack of pain occurred during the night in consequence.

4th. The patient had suffered very much; a current freed him immediately from pain. This was daily applied until the 14th May; and during that time, notwithstanding the very changeable and stormy weather, he had no return of pain; the skin had become perfectly soft and loose, and patient was cured. I have since frequently seen him, and he has remained well.

V. RHEUMATIC PAINS IN THE SHOULDER.

XXXV. ACUTE RHEUMATISM FOLLOWED BY INDURATION OF THE CELLULAR TISSUE AND IMMOBILITY OF THE UPPER-ARM AND NECK.

H. S., a printer, 29 years of age, a tall, powerful, and healthy-looking man, had had for the last three weeks acute pain in the right upper-arm and shoulder. November 8th, 1841, he came to consult me; there was a slight degree of fever;

the tongue was coated, and there was no disposition to perspire. I prescribed an emetic, and a blister to be applied to the nape of the neck. The fever yielded, but the patient could not sleep on account of the pain; he was unable to move the arm a handsbreadth from his body, or backwards; the neck was stiff.

11th. There was a shining induration behind the shoulder, which extended from the nape of the neck to the insertion of the deltoid muscle, and was very painful on being pressed. Ordered to take infusum sambuci, liq. ammoniæ acetatis, and to wrap the shoulder in cotton wool.

12th, 13th, and 15th. I applied a strong electro-magnetic current to the arm and neck.

12th. The pain at the back of the neck ceased, and the patient was able to raise his arm to the side of his head, but doing so brought on the pain.

13th. The arm could be moved more freely, and the induration was confined to a small place behind the shoulder-joint. On lifting the arm, the shoulder felt stiff, and as if something was being stretched; there was a little pain in the elbow; the upper-arm felt much warmer.

15th. The patient felt quite well; the shoulder

was electrified, and he returned to his work without feeling any inconvenience.

17th. He called to say he had had no return of pain, and was discharged cured.

November 19th, 1842. He came to me again, having acute shooting pain in the right side of the head, and in the right shoulder, brought on from travelling at night in an open railway carriage. I applied a strong electro-magnetic current to these parts three times, which caused the pain to subside immediately, and it did not again return.

XXXVI.—RHEUMATIC PAIN AFFECTING THE WHOLE OF THE ARM.*

E. B., a printer, 40 years of age, a short, thick-set, and healthy-looking man, was seized, two years

* Dr. Golding Bird observed, in his fifth Lecture on Electricity and Galvanism, that "In the neuralgic pains so frequently accompanying muscular rheumatism in its chronic form, constituting, indeed, what is known by the public, par excellence, as 'the rheumatics,' I have often witnessed considerable relief by drawing sparks freely from the part until an urticarious eruption appears on the skin. A daily repetition of the remedy has often nearly completely freed the patient from his discomfort. An analogous plan has sometimes given great relief to a class of cases which are the plague of the physician. I mean the neuralgic pain of the side so frequent in hysteric and chlorotic girls,—pains which in former days, and indeed not very long ago, were too frequently regarded as depending upon pleurisy, to the destruction of the patient's health."—ED.

before with pain in the right arm, which especially affected the elbow and wrist, and was very much increased by bed warmth: the use of the limb was in some measure imperfect. The treatment employed was stimulant embrocations, and covering the arm with medicated wool, which effected a cure in five weeks.

In July, 1841, acute pain was felt in the same arm: the patient was treated as before, but this time without deriving any relief. The excruciating pain during the night deprived him of sleep. It was particularly severe at the back of the forearm and hand; he could not move the upper-arm more than a handsbreadth from his side; pronation and supination were attended with a great deal of pain; and the hand felt as if it were swollen. The skin and cellular tissue on the posterior surface of the upper-arm, and radial side of the forearm, were thick and indurated, and he had complete anæsthesia of the forearm.

4th August, 1841. A gentle electro-magnetic current was passed down the arm, which quickly removed the feeling of tumefaction in the joints of the hand.

A current was passed on the 5th, 8th, 10th, 11th,

and 14th. Motion of the arm became freer; the induration, which was softer, was now confined to the upper part of the fore-arm, but the patient still suffered a great deal of pain during the night. A much stronger current was employed on the 16th, 17th, and 18th. This was followed by more freedom of motion in the arm, and a cessation from pain.

19th. The patient was able to go to work, and I did not see him until the 5th September: during this period he had been free from pain and every inconvenience when using the arm.

XXXVII.—RHEUMATIC PAIN IN THE SHOULDER.

W. R., a serjeant in the artillery, 28 years of age, a strong, healthy-looking man, was obliged to stand, in the autumn of 1840, for several hours in a heavy rain, after exercising. He was seized with acute pain in the right shoulder, which, from the treatment employed (stimulant embrocations), was so much better in six weeks as only to come on when the part was moved.

16th May, 1841. The patient came to consult me on account of the excruciating pain he felt every time he lifted or moved his arm. The

shoulder was a little swollen. I employed an electro-magnetic current for five minutes, which removed the pain and enabled him to move the arm freely.

20th. The pain in the shoulder was no longer felt, but he complained of pain in the biceps muscle, which was very much increased by the slightest movement. A few applications of the electro-magnetic current sufficed to remove it permanently.

XXXVIII.—RHEUMATIC INDURATION OF THE RIGHT ARM.

On the 15th June, 1842, Dr. Lehwiss sent a lady, 58 years of age, to me, who had frequently suffered from erratic pains, affecting chiefly the joints, and during the last eight weeks had continually felt acute lancinating pain in the right upper-arm, and for the last two days had suffered without intermission the most dreadful agony, which compelled her to walk about her bedroom for two whole nights. On examining the arm, I found that the cellular tissue was indurated, but not painful on pressure. The acute lancinating pain continued without any abatement, no application affording any relief. When the electro-mag-

netic current had been applied three minutes, the patient observed that the pain had ceased.

16th. The patient had very little pain during the night, but it increased towards morning: the electro-magnetic current, which was daily employed, freed her from pain.

At the end of the first week the pain was never felt for more than one or two hours at a time, and bore no comparison to what it had been, in regard to its severity.

2nd Week. The induration of the upper-arm was much softer, and of less extent. The patient came every other day.

3rd Week. There was very little of the induration to be seen; the nights were free from pain; and during the day it was only brought on when the patient was exposed to a current of air.

6th, 7th, and 8th July. Very powerful currents were employed; the induration was completely removed; and for the last three days she had had no pain. We then arranged that she should not come again unless the pain returned. To this date, the end of November, she had not been.

XXXIX.—RHEUMATIC INDURATION OF THE RIGHT SHOULDER.

H. W., a bricklayer, 54 years of age, an old-looking man, had been suffering for the last eighteen months from shooting rheumatic pains in the right shoulder and upper-arm. These were constantly felt, but were most acute during the night. He had tried all descriptions of baths, and a number of other remedies, without experiencing any relief. When I saw him, he had been eleven months in the Charité Hospital. He could not raise his right elbow higher than the nipple, and lifting it so high was attended with considerable pain; neither could he put his hand behind him, and he was quite incapable of doing anything for himself. The cellular tissue of the shoulder and upper-arm was indurated and painful on pressure, from the posterior border of the deltoid muscle to the lower half of the biceps, and from the upper border of the trapezius to the claviculo-acromial articulation. The patient perspired freely, but where the induration extended this was not perceptible. I ordered electro-magnetic currents to be applied. He felt relieved after each application, and was able to raise his arm without

inducing an attack of pain ; but after a few hours this improvement passed off, and his sufferings, especially in stormy weather, became most acute. The electro-magnetic currents were applied with great regularity for three months.

In the 4th week of the treatment, the induration over the anterior border of the deltoid muscle commenced to decrease : this enabled the patient to touch his left shoulder.

In the 6th week, the induration over the trapezius decreased, and the patient was able to raise his hand to the top of his head and to the left ear.

After ten weeks the whole of the induration was completely removed, and along with it the pain and obstruction in using the limb : the patient was discharged cured.

On seeing this patient, six months afterwards, he told me that he had had no return of pain, and that his arm was as strong and useful as ever.

XL.—LOSS OF POWER AND RHEUMATIC INDURATION OF THE UPPER ARM.

G. S., a porter, 50 years of age, a very powerful man, who had always enjoyed good health, came to me on the 1st March, 1842. He had had a little

pain for the past fortnight in his right upper-arm, which became very acute in the night. He experienced little pain on lifting heavy loads, but had great difficulty in attempting to lift anything not requiring strength; he could not hold a packing-needle, or raise a cup to his lips. On examining his arm, I noticed an indurated place, as large as the palm of the hand, over the insertion of the deltoid muscle, which was painful when touched, and remained pale during the passage of the electro-magnetic current, although the surrounding skin became reddened. A current was applied daily.

5th March. The patient was able to raise a cup to his lips without spilling the contents.

8th. The hand was steadier, the induration had diminished to the size of half-a-crown.

18th. The induration was quite absorbed, and with it every trace of the inconvenience he complained of. The patient was discharged cured.

XLI.—RHEUMATIC PAIN IN THE RIGHT UPPER-ARM.

The following is a similar case. W. K., a porter, had suffered, for six weeks, excruciating lancinating pain in the right upper-arm, and felt

great awkwardness and inability in moving light things, which obliged him to use his left hand in eating, &c. On examination I observed a long and broad induration, which extended from the upper border of the deltoid muscle to the external condyle of the humerus. I applied a very strong current to this part; and after the third application, there was an evident softening, and return of the strength and use of the limb.

8th March. The current was applied for the sixth time, and the patient was discharged cured.

XLII.—RHEUMATIC PARALYSIS AND PAIN AFFECTING
THE LEFT SHOULDER.

On the 16th April, 1842, I examined the left shoulder of Mr. L., who, eight weeks before, had acute rheumatism in that joint. Through the use of blisters, stimulant ointments, diaphoretic and narcotic medicines, the febrile symptoms disappeared, and the affection assumed a chronic form, the patient suffering agonizing lancinating pain, and the left upper arm remained paralysed. The left shoulder, which was two inches lower than the right, was angular, dry, and atrophied; the left arm was greatly emaciated down to the elbow,

and hung useless by the side, being stiff and immoveable: the fingers were free. The cellular tissue over the trapezius muscle was indurated, as also the skin of the shoulder and upper-arm, the deltoid and pectoralis major muscles were very much wasted, and seemed glued to the surface of the bones. The sensibility of the skin was diminished. Each attempt to move the arm was attended with very great pain, which was also induced by the continued pressure of the clothes; but the patient's sufferings were most acute at night, when paroxysmal attacks of tearing, shooting pain were felt in the shoulder, obliging him to leave his bed, or to seek a transient relief in the effects of opium.

The application of the electro-magnetic current was very painful.

1st Week. The patient was free from pain, and the nights being undisturbed the opium was discontinued; the skin was softer, and he was able to touch his right shoulder with the left hand.

2nd Week. The skin became less indurated, and the left shoulder was nearly on a level with the right.

3rd Week. The pectoralis muscle felt softer,

and the left hand could be raised to the forehead.

4th Week. The induration over the trapezius muscle was absorbed, the left shoulder was on a level with the right, and the skin had regained its natural appearance and sensibility. Motion of the arm upwards and towards the body was still confined, and pain was caused by the hand being raised too high.

5th Week. The patient could touch his right ear with the left hand, and raise it behind as high as the shoulder-blade, and the arm had regained the same size and strength as the right.

6th Week. The patient acquired the full use of his arm, and the treatment was discontinued.

XLIII.—RHEUMATIC PARALYSIS OF THE UPPER-ARM.

Mrs. R., 38 years of age, consulted me on the 30th July, 1842, on account of a paralytic affection of the right upper-arm. This had commenced in the end of June with acute pain in the right shoulder. Dr. Michaelis attended her, and prescribed diaphoretic medicines, stimulant embrocations, and blisters, which caused the pain to subside, but left the arm very weak and heavy. She

then consulted me. I observed that there was a red shining swelling on the anterior surface of the right shoulder, which was painful on pressure, and that the back of the arm, from the spine of the scapula to the external condyle of the humerus, was indurated. Paroxysms of pain in the arm occurred at night, and a feeling, as if cold water were trickling down it, and such great agony was felt in the shoulder and elbow as to oblige the patient to get up and walk about her room. She could not move her upper-arm, nor the elbow more than two hands-breadths from the side, and the slightest motion brought on the pain. I passed an electro-magnetic current down the arm.

1st July. The patient had no pain during the night, but it began again in the morning.

3rd. The patient had had no return of pain after the application of the electro-magnetic current on the 1st July. She had more freedom of motion in the arm, and it did not bring on pain.

5th. The swelling in the shoulder was absorbed, and the hand could be raised to her forehead.

8th. The induration at the back of the arm was nearly gone, and the patient could reach her left ear from behind.

15th. The induration at the back of the arm was quite removed, and the patient was able to arrange her own hair. The only movement which was painful, was passing the hand behind to the left shoulder, when she felt at the anterior border of the deltoid muscle a tightness, as if it were on the stretch.

28th. The patient had quite recovered the use of her arm, and the treatment was discontinued.

XLIV.—RHEUMATIC PARALYSIS AND ATROPHY OF THE
RIGHT ARM.

T. R., a labourer, 32 years of age, came to me on the 27th February, 1842, with his right arm in a sling. He said that when 11 years old he had had convulsions which continued for several weeks, and shortly afterwards he lost the use of his arm. About every three months, especially in stormy weather, paroxysms of pain occurred in the right arm, which drew it convulsively together, and rendered him incapable of doing anything. These attacks continued for six to eight days. The shoulder hung forwards, and was three inches lower than the left. The right arm was not half the size of the left. The cutis and cellular tissue

of the upper-arm and shoulder were indurated, and there was loss of sensation and motion accompanied by a feeling of numbness. There was no evidence of cerebral lesion.

28th February. I applied a powerful electromagnetic current to the shoulder, arm, and hand; after which the patient was able to dispense with the sling. The pain was much less during the night; and, after the sixth application, the nights were free from pain.

8th Application. The arm felt stronger, and pain was not induced by motion.

11th. The patient was able to chop wood the whole of the afternoon without feeling any pain.

14th. The induration of the skin and cellular tissue was removed. The fore-arm and hand felt warmer, and were increased in volumen.

21st. The arm felt as strong as ever, and he had the free use of it; but was not able to pick up a needle with his fingers. He could squeeze my hand very tightly, and was employed the whole of the day.

28th. The patient had obtained the full use of his arm, which had increased very much in size, and he was discharged cured.

VI.—THE WRITER'S CRAMP.*

XLV.—THE WRITER'S CRAMP.

Mr. S., 24 years of age, a strong and healthy young man, had been employed for the last four months in writing eight hours a-day. 19th July, he consulted me. He had the free use of his right hand, but immediately he attempted to write, the middle finger was contracted so as to touch the palm of the hand, and the fore-finger was extended. I believe this affection was not brought on by rheumatism, but by the excessive fatigue of writing for so long a time. I proposed to electrify the fingers and hand. Before the first application he was not able to write two letters distinctly; after it he wrote several words, and during the day several lines at a time.

20th. The application was repeated, which removed the contraction completely, and he was able to write for two consecutive hours.

22nd. The affection was cured.

XLVI.—THE WRITER'S CRAMP.

Mr. R., 28 years of age, consulted me on the 9th August, 1842, on account of a tremulous

* Der Schreibekrampf.

motion in the right hand when he was writing or attempted to handle any small object. When he had written from six to eight lines, this trembling would commence in the upper-arm and extend to the hand, obliging him to relinquish his occupation, and recurring for several hours whenever he attempted to resume his pen. Three years previous, he had an attack of acute rheumatism in the right arm, from which he entirely recovered. He had first noticed two years before a debility in the right arm, the trembling came on very gradually, and in stormy weather he sometimes had lancinating pain in the right arm, which was always removed by a vapour-bath. I observed that the middle third of the upper-arm was a little indurated, and that the skin could not be raised up in a fold so easily as in other parts. I applied the electro-magnetic current: the pain in the arm ceased after the first application; and, by the end of the first week, he was able to write much better, and for a continuity, by resting for short intervals.

4th Week. The induration in the arm was absorbed, and the patient could write for any length of time without inducing either pain or cramp.

VII.—RHEUMATIC PARALYSIS OF THE
FORE-ARM.XLVII.—ATROPHY OF THE MUSCLES OF THE FORE-ARM
AND HAND.

The Baroness R., 20 years of age, robust and healthy-looking, had observed, four years before, that she was gradually losing the power of motion in the left hand: she felt formication in the finger ends, and numbness of the whole hand. Notwithstanding the remedies employed, the arm became gradually thinner and weaker. On the 7th July, 1842, I was consulted. The muscles of the fore-arm were, with the exception of the pronators and supinators, atrophied, and between the two bones of the fore-arm there was a deep groove. The skin felt firm and dry: the muscles of the hand were also atrophied, especially those between the middle finger and radial side of the hand; the skin on the back of the hand was thick and indurated. The hand and lower half of the fore-arm were always cold and of a bluish-red colour. The 3rd, 4th, and 5th fingers were slightly contracted, and could not be straightened; the 4th and 5th could be closed, so as to touch the palm of the hand. The thumb, fore and middle fingers were

powerless, and the motion of the wrist was affected. In the upper arm, the cellular tissue was indurated, from the anterior border of the deltoid muscle, to the external condyle of the humerus, and another induration extended over the whole upper half of the trapezius muscle of the left side. The lifting of the upper arm was restricted from a feeling of tension: the left shoulder hung forwards; and in both, there was a dull intermitting pain, and feeling of weight. During the last four years every remedy had been tried, and strychnine was taken for some time without doing the patient any good. There was no evidence of spinal or cerebral lesion. Professor Dieffenbach, prescribed tinct. nucis vomicæ, Russian vapour baths, and an issue to be made in the upper arm, which treatment she had followed for three months, when she came to me. I advised the discontinuance of the tinct. nucis vomicæ, that the issue should be allowed to heal, the Russian vapour-baths taken twice a-week, and an electro-magnetic current applied daily to the arm.

11th. The temperature and colour of the left hand were more natural.

12th. The patient was able to move the wrist freely.

2nd Week. The temperature and colour of the hand were natural, the indurations in the upper arm were much softer, and the patient could raise her arm without the stretching being felt. The pain in the shoulder had subsided, and the strength of the left hand increased.

3rd Week. The induration of the upper-arm was very much less. The skin of the fore-arm and hand was warmer and softer. The arm felt much stronger, and the hand could be firmly clenched.

4th Week. The flexor and extensor muscles of the fingers began to contract on the passage of the current.

5th Week. A blister was applied to the arm. The contraction of the muscles on the passage of a current was more evident.

9th Week. The induration was absorbed; the hand felt naturally strong. The patient was obliged to leave Berlin; she took an electro-magnetic apparatus with her, and subsequently wrote to say that she had regained the full use of her arm.

XLVIII.—RHEUMATIC PARALYSIS AND ATROPHY OF THE EXTENSOR MUSCLES OF THE HAND AND FINGERS.

Mrs. S., 36 years of age, came to me, having lost the use of her arm. In the month of May, 1841, whilst perspiring freely, she sat in a draught and fell asleep; on waking she felt very cold, and had lost the use of her right hand. She then suffered from erratic pains in all her limbs, and aching pains in the back and shoulders; the usual remedies were employed without effecting any change. Blisters applied to the fore-arm caused only a temporary improvement.

On the 29th October, when I saw the patient for the first time, I observed that the right fore-arm and hand were much thinner than the left, the skin felt cold, and was of a bluish-red colour, the cellular tissue over the supinator longus muscle was indurated and painful on pressure. I ordered the arms to be kept very warm, to be constantly rubbed, and applied powerful electro-magnetic currents to the parts affected. The application of the current was very painful, and the passage of it down the arm caused no contraction of the muscles.

The current was daily applied: at first there was but little improvement.

December 1st. The patient was able to move each finger voluntarily.

10th. The motion of the fingers and hand was quite free. The induration over the supinator longus muscle and of the skin was absorbed.

20th. The patient had recovered the natural use of her arm and hand, which felt as strong as before, and she was discharged cured.

XLIX.—PARALYSIS AND ATROPHY OF THE RIGHT ARM.

Mrs. G., 26 years of age, a pale, delicate-looking woman, caught a severe cold from standing in a booth, in the month of December, 1840: this was followed by acute pain in the right side, which, during the night and in wet weather, became very severe.

In June, 1841, when six months advanced in pregnancy, the right arm and leg were palsied, and were often seized with acute lancinating pain. In the beginning of November, six weeks after her confinement, stimulant liniments, warm baths, and Russian vapour-baths, were employed without any benefit.

13th December, 1841. The patient was brought to me: she complained of complete loss of power

of motion in the right arm, hand, and leg, which were cold, of a bluish-red colour, and very much wasted. Sometimes in cold wet weather she felt severe benumbing pain in the hand, and acute shooting pain down the arm. The leg felt very heavy, and was dragged in walking. On examination I observed that the right arm was much smaller than the other, and that the skin and cellular tissue were indurated, from the posterior border of the scapulæ, across the deltoid muscle, and down the back of the arm. There was loss of sensation over the extent of the induration, and on pressure the bone felt painful. I advised the patient to wear flannel next the skin, to keep in a warm room, to take diaphoretic medicines, to apply friction to the arm, and have an electro-magnetic current applied.

After the application of a current the arm could be slightly moved.

14th. She could raise the arm as high as the shoulder.

15th. She could touch her ear, and had more power in the fingers.

16th. She could bend the fore-arm.

18th. She could lay hold of anything large.

20th. She could lift her hand to the top of her head. A current was applied to the leg. The induration was of less extent and softer.

21st. She could touch the back of her head; the colour and temperature of the hand were natural.

22nd. The muscles of the arm were more developed.

23rd. She was able to close the hand very firmly.

27th. The treatment was resumed. She was able to use her hand for many purposes.

28th. She could move the arm freely in every direction, except in raising her hand backwards and upwards.

29th. She was able to dress her hair by supporting the elbow.

30th. The leg felt much lighter, and she moved it more freely, but it still dragged a little.

3rd January. The arm felt so strong that she was able to resume her household duties.

10th. She was able to sew for a short time, but drawing the needle out was attended with difficulty. She walked with tolerable freedom.

20th. The patient came for the last time: the arm had nearly regained its former size and power.

She walked freely and firmly. The pain ceased after the first application.

L.—RHEUMATIC PARALYSIS OF THE EXTENSOR MUSCLES
OF THE RIGHT HAND.

M. S., 26 years of age, a servant girl, left her bedroom window open all night, and the next morning felt acute pain in the right wrist, extending up to the shoulder. The medical man she went to advised her to apply cold-water dressings to the wrist, which for a short time alleviated the pain, but in the night it returned with increased severity. The next morning there was a bright red shining swelling of the hand and fore-arm. The patient was admitted into the Charité Hospital.

The acute stage was removed by bleeding, warm fomentations, saline and diaphoretic medicines, but the patient had frequent attacks of pain in the shoulder and upper-arm, and the extensor muscles of the hand were palsied. When the fore-arm was extended, the hand hung down, forming a right angle with the arm. The cellular tissue over the deltoid and origin of the supinator longus muscles was indurated and painful, and at the back of the fore-arm felt thickened.

1st September. The treatment now employed consisted of warmth, diaphoretic medicines, and the daily application of a powerful electro-magnetic current, which after being employed a few times removed the pain.

5th. The cellular tissue began to soften, and *pari passu* the extensor muscles of the hand gradually regained the power of motion. Each application was followed by evident improvement, so that, on the 16th, the patient was discharged cured.

LI.—PARALYSIS OF THE EXTENSOR MUSCLES OF THE HAND.

Ludwig P., a weaver, was admitted in June, 1841, into the Charité Hospital. Four weeks previous he had been leaning with his right elbow on the sharp edge of a wooden bedstead, and on lying down his hand felt cold, the extensor muscles of the hand and fingers were palsied, and the latter were contracted and could not be extended. For seven weeks blisters, vapour-baths, and strychnine were endermatically applied to the fore-arm without any benefit.

On the 8th August I applied an electro-magnetic current to the fore-arm, and during its passage the patient had voluntary power over the extensor

muscles, which ceased the moment the circuit was broken.

11th. The patient was able to extend the fingers, move them separately, and bring the fore-finger and thumb together, so as to be able to hold sewing-cotton. After the fourth application, the voluntary power of motion in the muscles of the fore-arm and hand was quite restored, and the patient was discharged cured.

LII.—RHEUMATIC PARALYSIS OF THE RING AND LITTLE FINGER, AND INDURATION OF THE CELLULAR TISSUE ALONG THE INNER SIDE OF THE FORE-ARM.

Mrs. Zöllner, 28 years of age, who had previously enjoyed very good health, came to consult me on the 9th May, 1842. Since December, 1841, she had been suffering from rheumatic pains in her joints, brought on through living in a damp room. She was treated by several medical men, but had derived no benefit, excepting from Russian vapour-baths, which had diminished the pain. The last few days she had suffered excruciating pain, which deprived her of sleep. On examination, I found that the skin of both shoulders was indurated and tense, and that the cellular tissue of both arms from the posterior border of the deltoid

muscle down the back of the arm, to the internal condyle of the humerus, felt thickened and indurated. Both wrists were swollen. The cellular tissue from the middle of the fore-arm to the wrist was indurated. There was slight loss of power in both hands. The moving of the fingers caused a good deal of pain. The patient was not able to lift anything in consequence of the involuntary supination of the arm. On moving the fingers, the fourth and fifth always remained half closed; they could be a little flexed, but not extended, were numb, and subject to a very disagreeable feeling of formication. She could not raise the elbow higher than the level of the breast.

12th May. The patient was able to touch her ear with the opposite hand. The induration of the skin about the shoulders was gone, and that at the back of the arm was softer. The arm felt stronger.

14th. The induration was nearly absorbed, and supination was possible without bringing on pain; she was able to dress her hair for the first time. I now ordered her to rub the arm with the ung. iodinii comp.

17th. The current was applied to the finger

ends, and to the ulnar side of the hand. The fingers felt much freer.

18th. The fingers could be extended; the numbness had decreased, and the swelling about the wrist was softer.

20th. The feeling and motion of the fingers were quite natural. The patient now felt only in the morning a slight stiffness in the shoulder and wrist, which passed off in the course of two or three hours. The application was therefore continued for another week, when she was discharged quite well, and has since continued so.

LIII.—RHEUMATIC PARALYSIS OF THE THUMB, FORE
AND MIDDLE FINGERS OF THE RIGHT HAND.

Mrs. L., 36 years of age, had been living in the country for the last few years. During the summer of 1841, she had often felt slight erratic pains, which always went away of themselves; but in the autumn, she perceived a stiffness on moving the right hand, a feeling of numbness, loss of sensation, and gradual failing of the power of motion of the hand. She came to Berlin, and consulted me on the 6th April. The parts supplied by the radial nerve and its branches were palsied. The

right wrist felt weak, and was slightly twisted to one side. The thumb, fore and middle fingers could not be extended ; they remained half closed, but could not be flexed sufficiently to permit the patient to hold anything ; they were separated and numb ; sometimes formication was felt in the finger ends ; the thumb was cold and stiff. The skin of the hand was of a bluish colour, dry and cold. An induration extended over the back of the fore and middle fingers, and the three first metacarpal bones. The cellular tissue along the inner and radial side of the fore-arm was slightly indurated. I confined the treatment to the daily application of an electro-magnetic current.

8th April. There was slight improvement in the motion of the fingers.

12th. The feeling of numbness on the radial side of the ring finger was much diminished.

20th. Sensation was quite restored in all the fingers as far as the last joint : the numbness in the left hand and back of the fingers was gone.

30th. The induration in the fore-arm was absorbed ; the patient could sew with ease, and the wrist was well. The current was applied every other day.

5th May. The motion of the hand and fingers was free; the numbness was gone, but frequently a creeping was felt in the finger ends, which were now electrified.

10th. There was no trace of the complaint left; the temperature and colour of the arm and hand were natural, and all the induration was absorbed.

13th. The patient was discharged cured. I have seen her since at different times, but she had had no return of the complaint.

VIII.—MUSCULAR RHEUMATISM IN THE BACK.

LIV.—RHEUMATIC PAIN IN THE BACK, AND MUSCULAR INDURATION EXTENDING DOWN THE BACK.

Charles F., a peasant, 26 years of age, thick set, and very muscular, suffered, in the winter of 1841–42, such acute pain in the shoulders and back, as to be obliged to leave his employment. On the 25th February, 1842, he was brought to me. He walked very stiffly: sitting down brought on violent pain, and he complained of acute lancinating pain in both shoulders. The back was bent forwards, and stiff: there was on either side of the vertebral column a peculiar hardness of the muscles, which felt like cords, and on pressure, the muscles

slipped away and crepitated. The skin about the shoulders was stiff, and could not be moved about over the parts beneath. The back and both shoulders were daily electrified. The pains in the shoulders were quite removed, after the fourth application.

1st March. The loins were now daily electrified.

7th. The shoulder joints were both quite free ; the back was not so stiff ; the muscles felt softer, but the creaking noise in the lumbar muscles continued.

10th. The patient could move about, stoop, and raise himself up again without any feeling of pain. The creaking noise alone remained, and that was much diminished.

12th. The patient was discharged cured.

LV.—LUMBAGO.

Peter D., a tailor, 43 years of age, general health pretty good, had in 1840 the typhus fever, from which he quite recovered. In the winter of 1840–41 he occupied a large cold room, and eight weeks before I saw him, was attacked with pain over the sacrum, and lancinating shooting pains in his bones, felt especially at night, when in bed. He was

unable to stoop; was obliged to walk very carefully, and looked ill from the want of rest.

28th April, 1841, a current of electro-magnetism was applied for the first time; the next day he had no pain in the sacrum.

30th. The patient moved about better, and was free from pain.

3rd May. Had only a little difficulty in stooping.

9th. The patient was discharged cured.

In the middle of June he came to me, and complained of pain over the crest of the left ilium. An electro-magnetic current was applied eight times, galvano-puncture was then employed which immediately removed the pain, and at the end of a fortnight he was discharged cured.

LVI.—RHEUMATIC PAIN IN THE HIP.

F. W. S., 37 years of age, a serjeant in the artillery, and who had been nine years in the service, caught cold two years before when encamping in wet weather on the occasion of a review, and had since been subject to chronic rheumatic pain in the left hip and foot: he was unable to walk without the assistance of a stick.

A current of electro-magnetism was applied daily for three weeks.

20th June. I made galvano-puncture, which directly freed him from pain.

25th. He felt a slight pain in the right hip, which yielded to galvano-puncture.

26th. The pain was very acute, but continued only for half an hour.

28th. The patient could not exactly say where the pain was.

5th July. He was discharged cured.

IX.—RHEUMATIC PAIN IN THE HIP.

LVII.—SCIATICA.

Mr. S., 40 years of age, healthy, but had often had rheumatic pains induced through riding in wet weather; consulted me on the 22nd December, 1841. Two months before this he had a very acute attack of pain in the loins which continued for four weeks. For a month past he had used Russian vapour-baths, which afforded him some relief, and removed the pain from the loins to the left thigh. During the last few days the pain was aggravated by sitting or walking for any length of time, which he did with difficulty even

with the aid of a stick. On examination I found that pressure over the trochanter major was very painful. As is usual there was a great increase of pain in the night, so that he had but little sleep, and appeared worn out in consequence. I advised galvano-puncture, which he would not consent to have applied. I therefore employed the electro-magnetic current in the usual manner.

1st January. I had applied the current eight times; the pain was removed after each application, and the nights were free from pain. The pain returned on sitting or walking for any length of time, but with less severity.

14th. The treatment was resumed. The patient now desired to try galvano-puncture. The immediate relief was highly gratifying; he was free from pain, the leg felt stronger, he could lift it better, and pressure was not painful. Every trace of pain was removed.

After the 14th application of the electro-magnetic current, the patient felt quite well, and discontinued coming. I have since seen him, he has had no return of pain.

LVIII.—SCIATICA.

A young Swede, attaché to the embassy of Berlin, 27 years of age, had lived very freely, and been salivated several times. He had been subject to sciatica for the last few years.

7th January, 1842. He had another attack, for which he applied blisters, mercurial and narcotic ointments, and used 60 Russian vapour-baths without any beneficial effect. Every morning on getting up he felt very acute pain in the course of the left ischiatic nerve, which gradually decreased and subsided entirely by the evening, leaving a feeling of weakness in the left leg, and causing him to limp. On going to bed, acute pain was felt, which continued for one to two hours, and then ceased until 9 A.M. Being obliged to leave Berlin in eight days, the patient was willing to submit to anything through which he might obtain relief.

23rd April. The patient called on me. I could not find any induration either about the left hip or thigh, but deep in the posterior third of the great sacro-ischiatic notch there was a firm elastic swelling which was painful on pressure, and on the posterior surface of the thigh there was a spot as broad as two fingers, which was always cold and

painful on pressure. The patient complained of very acute pain in the left hip when sitting or walking. The leg felt very weak, and as if it would give way from under him when standing. I inserted a platina needle connected with an electro-magnetic apparatus through the skin close to the posterior superior spinous process of the ilium, and another over the place which always felt cold. The application was continued for 10 minutes, and gradually increased in strength, which removed the pain and weakness felt in the foot, and the patient was able to walk without the use of a stick. A slight pain returned after three hours, and continued during the night.

25th. The night was free from pain, which was also much less on walking, and, after the application of a current, remained away for the whole of the day.

28th. The pain was very trifling in the morning, subsided after the application of a current, returned in the afternoon, and continued for the remainder of the evening.

30th. The patient said that he had been quite free from pain the whole of the previous day, and nearly so that morning, and had perceived no

sensation of cold in the thigh for the last two days ; the application of the electro-magnetic current completely removed the pain and weakness.

1st May. The patient felt only a little pain on rising. He had walked a long distance the day before, and that morning without feeling any ill effects.

2nd. The patient left Berlin. Whilst under my care he took a bath of aromatic herbs daily.

We cannot explain the periodical return of rheumatic pains, and equally singular is another form of pain frequently met with as affecting the hip, which also seems to be caused by rheumatism, though I have never been able to discover any induration. In the cases I allude to, the pain on rising from the sitting posture is so acute in the hip and knee, that the patient is scarcely able to move, even with the help of his hands, but the more the limb is exercised the quicker the pain subsides.

LIX.—SCIATICA.

Mrs. Z., 50 years of age, very corpulent, occupied a cold damp dwelling, and had suffered for the last six years from sciatica, and a fixed pain in the right hip and knee, which on rising from her

seat, and on walking, became very severe. The patient suffered at night violent shooting pain in the right limb for weeks together, which prevented her obtaining any sleep; cold damp weather always brought on an attack. I applied galvanopuncture for three weeks, one needle being inserted over the hip, the other over the knee. The nocturnal pain was completely removed, but that felt on rising still continued. The patient discontinued coming.

LX.—SCIATICA.

Mrs. L., 54 years of age, robust and very corpulent, had suffered since the previous winter (about five months) from sciatica, which was always more painful in damp weather, and very acute at night. On rising from a chair, she was obliged to support herself for some minutes before she could take a step, on account of the pain in her hip and knee.

From the 24th May to the 14th June, galvanopuncture was made daily. The nocturnal pain, and also that in the knee was removed; the pain in the hip immediately after the application of the electro-magnetic current, was less, though on the

whole, not much improved. The patient discontinued coming.

LXI.—SCIATICA.

Charles P., 50 years of age, a locksmith, came to me on the 30th May, suffering from sciatica, which had been so acute for the last seven weeks as to deprive him almost entirely of sleep, and he was compelled to leave his work from the pain being increased by standing. The skin, from the crest of the ilium to the middle of the thigh was indurated, cold, and of a whitish colour. The patient had never felt pain in the joint. A pain began at the crest of the ilium, and passed to the groin; but that which was the most acute passed downwards behind the trochanter to the outer side of the knee, and extended sometimes, when very severe to the dorsum of the foot. A very powerful current was applied to the surface.

1st June. The pain had ceased during the night, and intermitted in the day; the indurated skin felt softer, had a more natural colour, and on the application of a powerful current, was covered with large red spots.

3rd. The pain became worse after a thunder-

storm, and spread to the right hip and to the back. The fact of the pain moving about, was a favourable sign. The induration was quite absorbed.

5th. The patient had had no return of pain for the last 24 hours, and wishing to go to work again, he discontinued coming.

LXII.—SCIATICA.

G. M., a Russian, 44 years of age, a valet, had enjoyed very good health, until within the last eight years, when from frequent colds he had an attack of rheumatism. He had been subject to attacks of sciatica for the last three years, which continued for months at a time. In January, 1841, he had an attack of sciatica, which continued in spite of medical treatment, until the middle of summer, when he went to Doberan, and took sea baths, which freed him from it. In the beginning of October he returned to Berlin, and at the end of November, the complaint returned in all its former severity. Blisters, leeches, Russian vapour-baths, salt-water baths, colchicum, anodynes, &c. were employed, but without benefit; the pain continued unabated, and underwent violent exacerbations. The patient was very much reduced,

and the complaint gradually assumed the character of a pure nervous affection.

On the 20th April, 1842, his medical attendant advised him to consult me. His countenance bore the expression of acute suffering, from the loss of sleep for so long a time; he was exhausted and emaciated; he walked with great difficulty, even with assistance; took very short steps, did not lift the left foot, held his knee quite stiff and bent backwards. Every movement was made with anxious care, particularly any which required the abduction of the left thigh. He complained of a violent pain which passed down the left thigh to the knee and external malleolus; and which became at night dreadfully excruciating; rising from his seat was a dreadful punishment, and, of late, the least excitement or speaking quickly, brought on severe paroxysms of pain. I immediately observed the great difference in the size of the two legs; and that the most severe pain began about three inches below the trochanter major, and passed inwards right through the thigh. Another acute lancinating pain followed the course of the ischiatic nerve, involving sometimes the whole of the outer side of the leg to the dorsum of the foot. He

described the pain as resembling a piece of the skin being laid hold of with pincers, and torn off. He had acute shooting pain in the gracilis muscle, and down the outer side of the thigh, and also a disagreeable sensation of cold and numbness, of which he complained greatly, being obliged to rub this part with flannel every night for three or four hours. The skin from the trochanter to the lower third of the thigh was thickened, indurated, white, cold, and shining. This swelling was distinctly perceptible to the touch, and also marked by the difference of colour over it; there was loss of sensation; pressure was slightly painful, and the vastus externus muscle felt dry and atrophied. A fold of skin could be pinched up, but it felt hard and cartilaginous. I advised the application of the electro-magnetic current, aromatic baths, and every other application to be discontinued.

20th April. After the current had been applied for half an hour, the patient felt relieved, the cold feeling in the knee was removed, and he could move the thigh without bringing on pain, the skin of the thigh glowed in the course of the afternoon, and he passed a quieter night than he had for months.

21st. The pain shifted its seat.

29th. The patient was quite free from pain; he complained of a feeling of weakness in the leg, and of coldness in the knee. The induration of the skin of the thigh was a little softer, and remained white and smooth, whilst the other parts reddened, and cutis anserina was produced by the application of a powerful current.

30th. The patient had an attack of pain, but it lasted only for a short time. He improved daily.

3rd Week. He was generally free from pain during the day. It came on towards evening, and subsided on getting into bed; the sleep was seldom disturbed. In the morning a slight pain was felt in the hip, which the electro-magnetic current removed for the remainder of the day. The indurated skin became turgid on the passage of the electro-magnetic current. Above the trochanter major I felt a deeply-seated induration (a rheumatic node) which was painful on pressure, and from which the pain seemed to proceed.

13th May. I employed galvano-puncture over this spot and to the knee.

7th Week. The induration of the skin rapidly decreased, and the node appeared more distinct.

3rd June. We had a violent thunder-storm which increased the symptoms of my rheumatic patients; the pain was felt for several days more acutely in the hip.

9th Week. The skin about the ankles felt as if it were being pinched up and torn off, pain comes on in momentary paroxysms.

12th Week. The induration of the skin was quite gone, the rheumatic node was also softer.

7th July. The patient had a momentary attack of pain this morning, when his former medical man happened to call upon him, and advised (without consulting me) a blister to be applied to the thigh immediately, and cod's liver oil to be taken. I, therefore, declined having anything more to do with the case.

27th. The patient sent for me again. He had had a great deal of pain since I last saw him, and the skin on the outer side of the thigh was again indurated; he was much alarmed by the loss of power of motion and stiffness of the muscles which had supervened. The nights were sleepless. A current diminished the pain and procured a quiet night. There was slight inflammation about the

node, and on the 30th July and 5th August I ordered six leeches to be applied.

14th *August*. The patient was nearly free from pain : the debility felt in the muscles of the thigh continued.

In consequence of my going into the country the treatment was discontinued, and on my return I found that the patient had left Berlin.

LXIII.—SCIATICA.

Mr. L., 32 years of age, had enjoyed excellent health. He told me that formerly he had a florid complexion, but from the constant pain and loss of sleep he had become thin and pallid. In October, 1840, he caught a severe cold ; since which he had suffered without intermission from sciatica in the right side. All this time he had been under medical treatment, but every remedy tried had proved ineffectual. He took the Dec. Zittmanni for a month with some benefit, but was never entirely free from pain. Stramonium and other remedies were inert. Dr. Schoenline advised him to take spirits of turpentine, which removed the pain in the hip ; but he was then seized with vertigo and violent pain in the head ; this yielded

to vapour-baths, when the pain in the hip returned and had since been continuous. On walking fast the pain diminished, but increased on walking slowly or standing. It was very severe on rising from a sitting posture, and he suffered exacerbations during the night, each lasting from one to two hours, and increasing in stormy weather. In consequence of the nocturnal pain, the patient was debilitated, he dragged his leg and took short steps in walking.

23rd January. He came to me accompanied by Dr. Schoenfeld. I observed $1\frac{1}{2}$ inches above and behind the right trochanter a painful spot on pressure. The pain spread from this spot over the outer side of the thigh to the knee, and along the anterior surface of the thigh. When the patient came to me he had a slight pain which caused him to limp. After the application of a current he was free from pain, the right leg felt lighter and stronger, the pain returned whilst on his way home, but again subsided until 7 P.M., when he had another attack which lasted for a couple of hours. He passed a quiet night.

24th January. On getting up he had a return of the pain which was removed by the electro-

magnetic current, and did not return until between 7 and 8 P.M. The night was free from pain.

25th. Slight pain was felt in the anterior surface of the thigh, the induration behind the trochanter was nearly gone. The skin of the thigh had felt warmer for the last two days, and was not so pale. The thigh and hip were powerfully electrified, after which the patient was free from pain and felt stronger.

26th. The patient had no pain, but complained of a feeling of exhaustion. I advised him to take a warm bath at night.

27th. A slight pain had returned in the anterior surface of the thigh, which was not increased by walking.

30th. There was scarcely any pain felt in the anterior surface of the thigh, and none on getting up or on walking.

31st. There was slight pain in the anterior surface of the thigh, which was removed by the electro-magnetic current.

1st *February*. A little pain was felt in the leg for a quarter of an hour.

2nd. There was a little pain felt in the middle of the thigh which lasted 15 minutes. I applied the galvano-puncture.

4th. Every trace of the complaint was gone.

6th. The patient continued to feel quite well, and had acquired his former healthy appearance. The treatment was discontinued.

X. RHEUMATIC PARALYSIS OF THE HIP.

Rheumatic induration is of considerable importance in the diagnosis of coxalgia. We frequently meet with pain in the hip-joint, not attended with inflammation, which resembles the symptoms of the first stage of ulceration of the hip-joint. If these cases are treated as inflammatory disease of the joint they become worse, but always retain the characteristics of the first stage of ulceration. The principal danger of ulceration—destruction of the joint—(or, as it is wrongly called, spontaneous dislocation) does not result, the patient limps very evidently, and on walking and change of weather, suffers pain in the hip and thigh. These cases are generally considered incurable, but if the nature of the complaint has been understood, and anti-rheumatic treatment is employed, complete recovery is possible. The patient has pain on walking, saves the limb as much as possible, does not rest equally on both feet, inclines his thigh

forwards, keeps the foot slightly averted or turned inwards, and stretched out in advance, the knee is slightly bent, and he treads on the heel or the toes. The affected hip is generally pushed more forwards, and the pelvis is more or less twisted. On careful measurement, it will be found that the trochanter on both sides is the same distance from the anterior superior spinous process of the ilium. On pressing the head of the femur against the acetabulum no pain is felt in the hip, perfect extension of the thigh is impossible, and stretching it at all is accompanied by a dull, violent, or slight pain, and it is this symptom which so frequently leads to a wrong diagnosis. The fact that this form of the disease is not attended with destruction of the joint, but exists only as long as the pain continues, has given rise to an attempt to distinguish coxalgia from coxarthrocace. The difficulty of distinguishing the first inflammatory form of coxalgia from the first stage of coxarthrocace, has induced many surgeons to oppose this distinction, for they entertain the opinion that it is better to consider every case as being a different stage of coxarthrocace, than to run the risk of mistaking the first stage, and so facilitate by injudicious

treatment, or at least not averting the occurrence of the advanced stage.

I consider that coxarthrocace is caused either by a deposit of tubercles in the bone, or arises from caries peripherica, which begins in the synovial membrane, and as far as I have had an opportunity of judging, runs a more chronic course, but still has much resemblance to rheumatic affections of the hip-joint, it is therefore of importance to discover some symptom which will enable us to distinguish scrofulous and inflammatory coxarthrocace from rheumatic disease of the hip-joint.

Believing induration to be a constant symptom in rheumatic affections, I entertained the hope that it might be the means of distinction in the above-mentioned diseases. After a careful examination of several cases of scrofulous disease of the hip-joint, I was satisfied that in them induration of the skin and cellular tissue did not occur. In May, 1841, I had an opportunity of observing in a child aged 7, an affection of the hip, beginning after exposure to the cold; the patient suffered acute pain on moving the right thigh, could only tread on the toes, limped, and the nates on the right side was swollen. There was a large, broad induration of

the cellular tissue extending from the middle of the ischiatic notch behind the trochanter to the middle of the thigh. The medical man called in recommended leeches, and counter-irritation by means of a moxa. After careful examination, I was convinced that the disease was rheumatic, and proposed a diaphoretic treatment. The patient took small doses of antimonii potassio-tartratis, warm beverages, as lemonade, had a bath of bran night and morning, and was kept in a warm room. The stick with which he had already learnt to move about was taken away, and he was not allowed to keep his bed. The result was most satisfactory. The first night the patient was in a profuse perspiration, and the next day could tread on the heel; the third day he was able to walk alone, though he still limped very much, and the induration of the cellular tissue had decreased. The child perspired very freely on the ninth day, was free from pain, and the induration was absorbed. I advised that he should wear flannel next his skin. I saw the child in 1842; the complaint had not returned.

LXIV.—PARALYSIS OF THE THIGH.

Elizabeth K., aged $3\frac{1}{2}$, was brought to me on the 15th May, 1841. The previous summer she caught cold from sitting on the damp grass, had rheumatic fever, and afterwards lost the use of both the lower extremities. Stimulant applications and baths were employed, and she was again able to walk. The left leg quite recovered, but the right remained partially paralysed and painful. The treatment for inflammation of the hip-joint was adopted,—repeated leechings, blisters, and mercurial ointment. The child not getting any better, was brought to Berlin. Several medical men were consulted, who recommended, as the leg seemed lengthened, the application of the actual cautery, the dread of which induced the father to take further advice. I was consulted. The child had a peculiar walk, would not go alone, trod on the right heel with the right foot turned outwards, soon complained of fatigue, leant over to the left side, bent forwards, took very unequal steps, and rested its whole weight on the left limb, which was kept quite straight, and the body turned with each step slightly round to the right. I noticed that the muscles of the right thigh did not contract;

there was a swelling on the right nates, and the right leg appeared about an inch longer than the left. The distance of the trochanters from the crest of the ilium was the same on both sides, as also the distance between the crest of the ilium and the external malleolus. Pressure of the head of the femur against the acetabulum produced no pain, neither did flexion or extension of the thigh. On attempting to abduct the leg beyond a certain distance, the child complained of pain, which was not increased by pressure made over the trochanter or any other spot near the joint. I came to the conclusion that the *abductores femoris*, and not the joint, were the parts affected. The posterior surface of the right nates felt thick and firm. An induration of the cellular tissue passed from behind the trochanter and the posterior surface of the thigh to the inner condyle of the femur. This induration was painful on pressure. The general health was good. I was of opinion that the child was suffering from a rheumatic affection of the soft parts of the thigh, and that if the limb were kept warmer, bathed with salt and water, and a current of electro-magnetism applied, she would recover. This treatment was adopted, the child was daily elec-

trified, and in a few days the pain, on abduction of the thigh, was gone. At the end of the first week she ran alone in the garden, and was able to walk to my house, a quarter of an hour's distance. The child still continued to limp, and stepped on the right heel. The toes were kept turned up. In the next fortnight the induration of the cellular tissue on the inner side of the thigh and the swelling of the hip diminished. The strength of the leg increased from week to week, and at the end of a month the irregularity of the gait was only seen in the child taking shorter steps with one leg than with the other. The parents were obliged to return home, where the treatment was to be continued.

LXV.—RHEUMATIC AFFECTION OF THE MUSCLES OF THE
HIP AND THIGH.

Pauline —, 16 years of age, strong and healthy, daughter of a medical friend, had had pain in her right hip since she was eight years old, which increased on change of weather and through exercise. At times she was quite free from pain. The patient had been constantly under treatment. Medical men were of opinion that the actual cautery should be employed. Her father considered

that the complaint was of a rheumatic nature. Sometimes warm baths afforded relief, but the complaint always got worse again in the winter. In the summer of 1840 the baths of Töplitz were of much benefit, but in the following winter the pains returned with more severity, and in the spring and summer of 1841 became even worse. The patient limped; and when the right leg was set down the external muscles of the right thigh gave way, and the pelvis suddenly dropped towards the right. I proposed the application of electro-magnetism, and applied galvano-puncture. At first the pain only subsided for two or three hours, but these intermissions became gradually longer, and, after the 20th application, the complaint was cured. The patient was able to walk a long distance, and she was no longer affected by change of weather.

In May, 1842, she had a slight shooting pain in the right hip, which was removed entirely by two applications of galvano-puncture, and the patient has now continued quite well for nine months.

LXVI.—COXALGIA. INDURATION OF THE CELLULAR TISSUE BEHIND THE TROCHANTER MAJOR.

Ernst B., 3 years of age, a fine child, was brought to me in October, 1841, that I might decide whether the actual cautery should be applied, which a surgeon proposed to do on the following day. Six months previous the child began to limp with the left leg; pain, which had gradually become very great, was felt in the hip and knee; and the child could not be induced to set down the left leg or to allow it to be extended. He cried bitterly at night owing to the pain. The medical man applied blisters, leeches, mercurial ointment, and issues; the child was kept in bed, and got better. The pain at night had ceased; he again used the left leg, which seemed lengthened, and he limped on walking. On careful examination, I noticed that the child, when led, could walk across the room, bearing lightly on the left leg; the right hip was raised, the left leg appeared the longest, and the child kept it a little bent; the foot turned outwards on each step, and the left nates appeared flatter than the right. The distance of the trochanters from the crest of the ilium was equal on both sides. On pressing the head of the femur

against the acetabulum there was not the slightest pain felt, but there was over the trochanter. The skin and cellular tissue were indurated about the left hip. I disapproved of the application of the actual cautery, recommended warmer clothing, the child to be kept in the house for the next week, diaphoretic medicines, salt-water baths, and the hip and thigh to be well rubbed. In eight days the child was brought to me. It walked very much better; the left leg was still saved, but was not abducted; the induration of the skin and cellular tissue was nearly absorbed, a small spot only remaining behind the trochanter. I now ordered that baths of malt and calamus root should be used, and discontinued the diaphoretic medicines. In fourteen days the child was quite well, the induration was absorbed, and there was no pain or limping on walking. I saw the father of the child on the 12th of April, 1843, who said there was no sign of disease of the hip joint; the child was and had continued well.

XI.—RHEUMATIC PARALYSIS OF THE MUSCLES OF THE THIGH.

LXVII.—RHEUMATIC PARALYSIS OF THE ADDUCTOR MUSCLES OF THE THIGH.

Mr. S., 50 years of age, whose general health had been excellent, had suffered for the last eight years from palsy of the muscles on the inner side of the thigh and leg. On the 25th May, 1842, he consulted me. He complained of his left leg feeling weaker than the right; that he could not stand for any length of time without it giving way under him. The cellular tissue along the inner side of the thigh and leg was indurated, and in this extent there was loss of sensation and a feeling of numbness, over which the skin was always cold. On change of weather he was subject to attacks of shooting erratic pain in the left limb and back. The treatment employed consisted of warmer clothing, warm baths, shampooing, electro-magnetism, and the application of ung. iodinii comp. to the induration. After the electro-magnetic current had been employed the patient felt relieved, and continued to do so for three or four hours.

1st Week. The numbness was much dimi-

nished, the leg felt stronger and warmer, and the induration was much softer.

2nd Week. The pain had moved to the back ; the leg continued to feel weak on walking, but he stepped more freely after the application of the electro-magnetic current.

3rd Week. The pain in the back had ceased ; he walked better ; the feeling of weakness and numbness in the leg was gone ; and the adductor muscles did not feel stiff.

5th Week. The induration was nearly absorbed, and sensation was restored ; motion was free, and the leg did not give way whilst standing.

6th Week. The induration was completely gone, and the patient discontinued coming.

XII.—RHEUMATIC AFFECTIONS OF THE KNEE.

LXVIII.—RHEUMATIC SWELLING OF THE KNEE.

Miss A., 18 years of age, fair, healthy-looking, and had always enjoyed good health, had, in 1841, an attack of acute rheumatism in the left knee, which was combated by leeches, cupping, blisters, calomel and opium, and stimulant and discutient applications, &c. Convalescence was very slow ;

and when the patient consulted me, on the 4th July, 1842, she could only walk a very short distance, suffering severe pain. The knee was swollen, from an enlargement of the internal condyle of the femur and head of the tibia, and from fluid in the joint, which could be felt on either side of the ligamentum patellæ. The leg was extended and almost motionless; in fact, there was merely sufficient movement to allow me to ascertain that ankylosis had not taken place. Pressure made over the internal condyle of the femur was slightly painful, and when made on the popliteal space showed that the tendons of the flexor muscles were rigid and contracted. The patient said that she had not slept for the last two nights on account of violent shooting pain in the knee and shin. Electro-magnetism was at first alone employed. Directly after the application the left leg felt lighter, the shooting pains ceased, and the pain felt on walking was less.

2nd Week. The patient could walk a long distance, and the pain did not return for one or two hours, and again subsided after a little rest; the elastic swelling on either side of the ligamentum patellæ was gone; there was a sharp prominent

edge and several round lumps felt over the internal condyle of the femur and the head of the tibia.

3rd Week. Electro-magnetic currents and ung. iodinii comp. were applied to this part.

4th Week. There was slight voluntary motion in the knee. Currents were daily applied.

5th Week. The swelling about the internal condyle had lessened.

6th Week. The patient had taken several long walks without feeling any pain. The edge of the internal condyle of the femur was quite smooth.

7th Week. Passive motion of the joint was daily employed with great care to a considerable degree without inducing an attack of pain, though a few weeks back the most careful attempt at passive motion caused the most dreadful pain. The patient was desirous, in order to accelerate her recovery, that the tendons should be divided. This I objected to do, as, in consequence of the enlargement of the bone near the surface of the joint, it would have been but of little benefit. The same treatment was continued for a short time when, on account of the patient being compelled to leave Berlin, it was discontinued.

LXIX.—RHEUMATIC SWELLING OF THE KNEE.

Mr. K., steward of a public institution in Berlin, 50 years of age, a large and strong man, had been affected with shooting pains in his limbs and swelling of the right knee for the last three years; the swelling was reduced by leeching and issues. Two years ago the left knee was affected with a large white fluctuating swelling and pain, the flexor muscles were in a state of rigidity, and the knee was bent and contracted, each attempt to extend or flex the limb caused the most dreadful pain. The patient could move about with assistance or by using a stick, but it brought on most excruciating pain; he could not lift the leg; and, in order to bring it forwards, he was obliged to lean over to the right side. At night acute pain was felt in the bones of the pelvis, knee, and front of the leg; in the middle of the leg there was a node as large as a five-shilling piece.

After the first application the patient could tread more firmly and without pain. The nocturnal pain gradually decreased. The swelling of the knee was softer and not so tense.

2nd Week. The pain had quite ceased in the

node, the nights were free from pain, and the patient rapidly improved.

3rd Week. After some damp weather, acute rheumatism came on in the left ankle, the foot was swollen, and any movement of the joint was accompanied by a sharp stabbing pain. All the other symptoms had increased, the pain extended up the inner side of the leg to the hip.

4th Week. A node had formed on the sacrum which gave rise to violent nocturnal pain. The knee had decreased an inch in circumference, the swelling was very soft, the node on the shin was no longer painful.

5th Week. A powerful current was applied which removed the pain in the ankle for three or four hours.

6th Week. The pain in the ankle was quite gone.

7th Week. The swelling of the foot was much less.

8th Week. The patient was for the first time entirely free from pain; he walked easier; could extend the left knee more; the swelling in that joint was subsiding, and the patient only complained of the œdema of the ankle.

9th Week. The patient could walk a long distance ; and in order to promote the absorption of the œdema, I ordered him to use the ung. iodinii comp.

10th Week. The swelling of the knee and foot was much diminished ; the knee was freer ; and only on extending the leg the flexor muscles were felt to be stretched.

12th Week. The pain was all gone. The swelling of the left knee steadily decreased and became softer.

14th Week. The skin could be moved more freely about over the swelling, and only on attempting to extend the knee completely was the tightness felt. The œdematous swelling was confined to the ankle. The patient took long walks every day, and the knee was reduced to a third of its former size. The treatment was now directed to promote the absorption of this swelling, which was effected by the middle of September. There was then a slight pain felt in the sole of the foot, and this was removed by galvano-puncture. The patient was quite well ; but owing to his feeling a little stiffness about the knee, I advised the occasional application of an electro-magnetic current.

LXX.—ACUTE PAIN IN THE KNEE-JOINT.

Mr. S., 55 years of age, a short, stout, and pale-complexioned man, had suffered when 10 years of age from a swelling of the knee-joint, which obliged him to go about on crutches for several years; he was afterwards able to dispense with them, a stick being sufficient assistance: the knee continued to feel painful after walking. In February, 1842, the knee became excessively painful; and on the 26th June, he came to consult me. The internal condyle of the femur was enlarged, the cellular tissue in the popliteal space was indurated, and the skin could not be moved about. The pain extended from the internal condyle backwards through the popliteal space, and then passed upwards and downwards; motion of the knee was not impeded, though accompanied by pain. The joint and the back of the leg were powerfully electro-magnetized; and when the patient rose from his chair he was free from pain, and raised his left foot on to a chair without bringing it on.

27th. On getting up in the morning the pain returned in the knee; the electro-magnetic current

again removed it, and it did not return for the remainder of the day.

28th. The patient left Berlin quite free from pain.

LXXI.—SWELLING OF THE KNEE, AND INDURATION OF THE CELLULAR TISSUE.

Mr. G., a sculptor, consulted me on account of his knee: he had always enjoyed good health. In February, 1842, he suffered constantly from catarrh through exposure in a cold atelier, the floor of which was of stone. All the winter he had suffered from lancinating pains in his limbs; and in February he had acute rheumatism in the right knee. On the 10th August, when I was consulted, the right knee was a little swollen; the skin was thicker and adherent to the indurated cellular tissue below; he complained of a stabbing pain felt on standing and walking, which was very much increased by fatigue. The pain extended to the dorsum pedis and to the hip. After the application of a current of electro-magnetism, the foot felt lighter and stronger, and the pain in the hip was removed.

12th. The elastic swelling was gone, and the pain was felt less after walking.

13th. The skin over the knee was softer, and the knee felt much warmer.

17th. The pain in the knee was quite gone, and the skin was softer and freer. That in the loins was removed by galvano-puncture applied twice on successive days. The induration of the cellular tissue about the knee diminished every day, and in the same proportion did the stiffness of the joint wear off. The patient was now attacked with typhus fever, after his recovery from which the knee was quite well.

XIII.—RHEUMATIC PARALYSIS OF THE MUSCLES OF THE LEG.

LXXII.—PARALYSIS OF THE EXTENSOR MUSCLES OF THE FOOT, AND INDURATION OF THE CELLULAR TISSUE.

P. H., aged 7, had convulsions when two years of age, and was confined to bed for several weeks, and on getting up the right leg was palsied. He was treated for disease of the spinal cord. The muscles of the calf became atrophied, and the toes were turned downwards. The tendo Achillis was divided, which allowed of the toes being raised a little by the hand. Baths, stimulant embrocations, spirituous lotions, blisters, cod's liver oil, and

tonics were tried in vain. On the 25th March, 1842, he was brought to me. I was satisfied, after a careful examination, that the spinal cord was not affected. The whole of the leg was wasted. The foot and upper two-thirds of the leg were cold and of a bluish-red colour, which appearance extended to the upper third of the leg; the knee also felt cold. The skin over the knee adhered firmly to the cellular tissue, and felt thickened. There was a thick induration over the anterior surface of the right leg. The electro-magnetic current did not produce the slightest agitation or contraction of the muscles of the leg or of the foot; and the muscles of the calf and flexors of the toes contracted but a very little: sensation was natural. Treatment: pediluvia of chamomile flowers; daily friction applied to the leg and foot; the leg to be kept very warm; and a powerful electro-magnetic current applied daily. The parents promised to persevere with this treatment, as no benefit could be expected from a short continuance of it.

1st Week. The gastrocnemii muscles felt softer and fuller, and reacted more powerfully on the passage of the electro-magnetic current.

2nd Week. The development of the gastroc-

nemii muscles became more evident, and the patient could flex the toes very slightly.

3rd Week. The foot felt warmer, and was less discoloured.

4th Week. No trace of motion was perceptible in the extensor muscles.

6th Week. The leg was of the natural warmth, and the induration in front of the leg was flatter. The bluish-red colour of the foot was gone, though it still continued redder than the left, and was not so warm.

7th Week. The child was not able to leave home on account of a catarrhal affection. I ordered inunction with the ung. iodinii comp.

9th Week. The softening of the induration on the anterior surface of the leg was evident, and there was a slight reaction in the extensor muscles on the passage of the electro-magnetic current, which, on passing through the peronæi muscles, turned the foot a little outwards through the tibialis anticus, and the extensor muscles inwards; the toes were lifted and separated a little, but dropped again when the current was broken.

10th Week. The patient was able to move voluntarily the second and third toes. These

movements were very inconsiderable; but they kept pace with the gradual softening of the induration on the front of the leg, and confirmed the hope of ultimate recovery.

1st June. The patient went with its parents into the country; the treatment was discontinued for six weeks. On the return of the patient to Berlin, I found very little improvement had taken place. On the passage of a current the outer side of the foot was drawn a little outwards, and the second, third, and fourth toes could be slightly extended and separated. The foot was moderately warm, and no longer of a bluish-red colour. After four applications of a quarter of an hour each, I obtained reaction in the extensor brevis digitorum pedis, and in the extensor proprius pollicis muscles. I was satisfied that the muscles would recover their proper functions when the impediment presented by the rheumatic effusion was removed.

LXXIII.—PARALYSIS OF THE MUSCULI PERONÆI, AND INDURATION OF THE CELLULAR TISSUE EXTENDING OVER THE OUTER SIDE OF THE LEG.

Miss K., 19 years of age, who had enjoyed good health, had noticed for the last two years that her right ankle was stiff. For the last nine

months she had been an out-patient at the University Clinic, where the complaint was considered as an incipient pes equinus. Softening oleaginous applications were applied to the calf, and spirituous applications to the external surface of the leg. This treatment producing no benefit, it was determined to divide the tendo Achillis.

On the 4th February, 1843, I was consulted. I observed that she could not raise the toes, nor turn them outwards. She was not able to tread on the heel alone, as the anterior part of the foot fell to the ground; nor could she raise herself on her toes. The right leg was wasted from the knee downwards; the skin felt cold, appeared of a bluish-red colour, and was dry and indurated over the extensor muscles. The cellular tissue, from the middle of the tibialis anticus muscle to the malleolus externus, was indurated, as also was the whole of the leg in a slight degree. The skin was numb. The patient could assign no cause for her complaint; it had gradually come on without the slightest pain. She had never suffered from rheumatism or any nervous affection. Walking was not much impeded, but she complained very much of the feeling of numbness and cold in the

right leg. I was of opinion that the complaint arose from rheumatic effusion into the cellular tissue and extensor muscles of the right leg. The indication was therefore to produce absorption of the exsudation. I ordered the dry shining surface of the leg to be bathed night and morning with hot lye, inunction of ung. iodinii comp., and employed for five minutes daily a very strong current to the indurated parts.

2nd Week. The skin of the leg was no longer of a bluish colour, but still remained cold.

3rd Week. The feeling of cold and numbness was much diminished: the induration on the anterior surface of the leg was softer: on the passage of the electro-magnetic current the extensor digitorum pedis muscle was slightly agitated, and, when the foot was in a hot bath, the toes could be raised.

4th Week. The foot felt warmer, the induration behind the malleolus externus was removed, and the feeling of numbness decreased.

5th Week. A slight motion of the extensor muscles of the leg on the passage of the current was visible.

6th Week. The numbness of the skin was nearly

gone; the induration of the cellular tissue was very much softer; voluntary extension and movement of the toes outwards was increased.

7th Week. The ointment was discontinued, and a bandage and compress saturated with an alcoholic solution of iodide of potassium was employed. The softening of the induration proceeded rapidly.

8th Week. The skin of the affected leg was nearly as warm as that of the other; the redness of the skin was trifling; and the patient could, when the foot was placed flat on the ground, raise its outer border by the contraction of the peronæi muscles, which were very much agitated by the passage of a current.

9th Week. The patient was able to move the toes quite freely, and could raise herself a little upon them; but she could not yet stand upon her heels, with the toes drawn up, as they immediately dropped down.

10th Week. I applied galvano-puncture. The contractility of the muscles was very much increased.

12th Week. The motion of the toes was quite natural, and the voluntary power of the peronæi

muscles increased every day. The treatment was continued.

XIV.—RHEUMATIC PAIN IN THE SOLE OF THE FOOT.

LXXIV.—RHEUMATIC PAIN IN THE BALL OF THE FOOT.

H. S., 40 years of age, a bricklayer, a tall, powerful, and healthy-looking man, was seized in September, 1841, with lancinating pain in all his joints, accompanied with slight febrile symptoms, which soon passed off; but the pain continued very violent. He was admitted into the Charité Hospital; and from the treatment employed, the pain ceased in all the joints with the exception of the feet, in which, for the last three weeks, he had endured great suffering.

5th April, 1842. I was consulted. He walked with great difficulty, as each movement of the ankles brought on excruciating pain. The metatarsal joint of the left great toe was swollen, of a bluish-red colour, and very painful on pressure. After the first application of the current he had no return of pain during the night.

4th Day. The blue colour and swelling of the left foot had decreased.

2nd Week. The pain in the ankle joint was quite gone, and was only felt in the ball of the foot and metatarsal joint of the great toe.

3rd Week. There was very little swelling of the left foot. The ankle was quite free from pain.

4th Week. The pain continued unabated in the ball of the foot, which had a doughy feeling. After the application of a very powerful current, it was removed for a few hours, but returned with as much severity as before.

5th Week. Galvano-puncture was employed to both feet; one platina needle was inserted near the second toe, and the other at the middle of the inner border of the foot. The result was most successful; the patient was immediately relieved from pain; the foot felt quite strong; he was able to walk easily and firmly, and to raise himself on the toes of one foot. The pain remained away until the 3rd June, when, after a thunderstorm, a little shooting pain was felt in the left foot; and as it continued, the patient came to me on the 5th June. Galvano-puncture was again employed, since which he has continued quite well. He called on me in July to say that he had had no return of pain, and that he was able to carry a hod

of bricks up a ladder as well as ever. On the 3rd January, 1843, the patient came to me again, on account of pain and swelling of the first joint of the left middle finger; there was an elastic swelling about this joint, which was of a bluish-red colour, and painful when touched; he also complained of a dead sort of pain in the arm. The finger was nearly straight and perfectly stiff.

3rd January. Galvano-puncture was made; at night the patient bathed his hand in hot lye, and applied a mustard poultice to the swollen joint.

4th. The pain was removed from the arm; the finger could be half flexed; was less painful and swollen: the same treatment.

5th. The pain was quite removed; the hand felt light, and motion was perfectly free; the fingers could be bent, but not firmly clenched. The swelling about the finger-joint was gone; the redness was confined to the ulnar side of the finger, where it was only painful when pressed. The same treatment.

6th and 7th. The treatment was omitted.

8th. The joint was rather more swollen, not red, and only painful on pressure at the side; he could

clench his hand, which was painful when firmly closed. The same treatment.

10th. The patient could use his hand freely and without feeling any pain: and, at his request, he was discharged. He called 14 days afterwards to say he was quite well.

LXXV.—RHEUMATIC PAIN IN THE SOLE OF THE FOOT.

T. P., 28 years of age, a printer, was attacked in the autumn of 1840, with acute articular rheumatism, which confined him to his bed for several weeks, when it assumed a chronic form; and he had lancinating pains in his limbs. He was admitted into the Charité Hospital; and in a short time, the erratic lancinating pain subsided from the treatment employed: sulphur-baths, &c. The heels and soles of both feet remained painful; he was not able to stand for more than a few minutes at a time, and could not run or go up stairs without suffering great pain. Blisters, stimulant embrocations, leeches, vapour-douches, and sulphur-baths were employed without producing any benefit. The complaint continued unrelieved for some months.

10th July, 1841. The cellular tissue of the

heels and soles of the feet was indurated and thickened, and there was a swelling below the inner malleolus and at the inner side of the heel, over which pressure was slightly painful. I applied electro-magnetic currents: each application was followed by an improvement lasting for three to six hours, during which time the patient could stand, run, or walk up stairs without feeling any pain. I now applied galvano-puncture three times. After the first application, the pain ceased completely; and after the third application, he was discharged cured.

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